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Intergenerational Learning in the Museum of Modern Art's Interactive Lab

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Intergenerational Learning in the Museum of Modern Art's Interactive Lab

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Dedication

To Bryan, for your endless support over the past nine years. As a small token of my gratitude, I won’t make you read this thesis again.

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I am incredibly fortunate that I met Stephanie Niemeyer while I began looking for a career that was fun, meaningful, and intellectually stimulating. She introduced me to art museum education and completely changed my path in life. I cannot thank you enough for your support and know that you will continue to influence, motivate, and lead many others, regardless of what museum is lucky enough to have you.

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Abstract

Intergenerational Learning in the Museum of Modern Art's Interactive Lab

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This thesis examined an interactive, intergenerational gallery entitled *MoMA Art Lab: People*, located within the Museum of Modern Art in New York City. It is composed of various stations that visitors can explore, which include activities appropriate for people of all ages. The motivation for this research came after noticing a lack of family programming in art museums that truly engaged both the adults and children in family groups. Often the children would be active but the parents would sit passively nearby. This was not the case in the MoMA lab, where people of varying ages interacted with both the stations and each other as they explored the activities.

This study sought to focus on the aspects of the lab that most often led to the engagement of adults who visited the lab as part of an intergenerational group. In order to examine possible reasons why the lab was able to engage adults, I conducted a case study that involved observing nine groups who entered the lab, interviewing seven of them, and also interviewing five educators in the Family Programs department who held significant roles in the development and running of the lab. The findings revealed that the aspects of

MoMA Art Lab: People that most engaged adults were stations focused on art-making and were designed in a way conducive to conversation.

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Chapter 1: Introduction

During my visits to museums over the years, I noticed that many of the programs and materials aimed at families tended to focus solely on children and did not attempt to engage the adult members of the group. I began to search for an exemplary instance of a museum that was truly intergenerational in some way, whether that be through programming, educational materials, wall labels, or anything else that attempted to bring families together in their learning. A few museums piqued my interest, but I had trouble finding anything that really stood out from the rest.

While searching for a case study for my thesis, I was offered an internship in the Family Programs department at the Museum of Modern Art (MoMA) in New York City. While examining the MoMA website to see what kinds of tasks I might do as part of my duties, I found an interactive family space titled *Material Lab*[1] that appeared to be exactly what I had been looking for over the previous few months. The family webpage describing the lab had a mature aesthetic (no cartoon characters or visual indications that the space was only for youth) and clearly stated that there were activities for both children and adults. It appeared to be a good fit for my research; however, I was concerned that the online description of *Material Lab* would not match with how people

[1] It is necessary to briefly describe the naming of this space. There have been five different versions of the lab over the years. *Material Lab* was the space I worked in over the summer and *MoMA Art Lab: People* is the most recent lab and the one I focused on for my research. I use terms like "MoMA lab," "the lab," or "the interactive space" and other similar names interchangeably when referring to *MoMA Art Lab: People*. I clearly specify when I am referring to prior labs and use "labs" when referring to all of the versions of the lab cumulatively. More will be said about this in the definitions section of this chapter.

were actually using it. I decided to spend the summer at MoMA observing the lab before making the final decision to select it for my research.

After spending time in the *Material Lab* everyday for ten weeks during the summer of 2012, I knew that it was successful at encouraging children and adults to learn. Each day I saw families stay in the space for long periods of time and was told that, on average, each family visiting the lab spent over thirty minutes playing with the different activities. Often an adult would come in and explore the space on her own. This demonstrated that the lab was potentially good at engaging intergenerational groups because the activities were interesting to adults–whether or not there was a child with them. Over the summer I even observed and spoke with a group of students from a local university who spent over an hour in the lab playing with the activities that focused on design. I also discovered that all family learning events at MoMA, such as programs and tours, were intended to strongly encourage all members of a family to work, learn, and create. I decided to focus, in particular, on determining why the lab was successful at engaging the adults within intergenerational audiences.

CENTRAL RESEARCH QUESTIONS

What aspects of *MoMA Art Lab: People* and its activities are conducive to effectively engaging adults as well as children who visit the Museum of Modern Art as intergenerational groups? What implications for other museums can be derived from the experiences of intergenerational visitors to the lab?

PROBLEM STATEMENT

I have found very few museum programs, activities, and educational materials genuinely intended for all members within a family group. From personal experience,

events labeled “family programming” often are directed only at the younger family members and do not attempt to truly engage adults within those groups. Museum educators should design activities that appeal to people of all ages when working with families. One way to accomplish this is by insuring that each activity can be interacted with in various ways, enabling each individual learner to engage in an interesting and developmentally appropriate way. Educators should also provide open-ended activities to emphasize simple exploration, as these unrestricted options enable creativity to develop in participants of all ages.

PERSONAL MOTIVATION

I have always worked with children and knew I wanted to continue on that path for my career, but was never quite sure in what field. After volunteering as a docent at the Blanton Museum of Art in Austin, Texas and giving tours to groups of all ages, I found my calling in museum education. I explored different areas by interning or working with families, teachers, docents, summer camps, and outreach programs over a period of a few years. With each new position I tried, I became increasingly sure of my decision to be a museum educator. I even branched out from my comfortable art world and worked or interned in the education department of history and children’s museums. In all these endeavors I have either worked directly with children or helped shape content and programs for the benefit of these young museum visitors.

I want to help children and the caregivers in their lives (parents, grandparents, aunts, nannies or anyone that might take a child to a museum) tap into their knowledge and creativity to make the most of their visit to the museum. On a larger scale, I hope to foster a love of art and learning in both children and adults. Caregivers have good intentions when they take children to a museum, but they might appreciate a little

guidance on their visit. Adults arrive at the museum with their own knowledge, ideas, and opinions but are sometimes unsure how to share what they already know with children, especially since adults face the additional logistical challenge of guiding their children in an environment that is not always child-friendly.

For many years as a docent I facilitated learning most frequently with children and did not work with adults on a regular basis. Later I learned to appreciate experiences with adults in a different way than I did in my interaction with youth. The depth of my adult conversations and the difficult topics I could discuss with them was genuinely enriching and enjoyable for me. I did not expect to gain as much pleasure in my interactions with adults because I had always been so focused on children. By choosing to work with and research intergenerational audiences, I am allowing myself to study these two very different groups that challenge (and appeal to) me in different ways.

PROFESSIONAL MOTIVATION

Gathering more information on family audiences, particularly in art museums, is well warranted. Although families make up a very large percentage of all museum visitors (Borun, 2008), research on them is relatively limited (Ellenbogen et al., 2004). However, family groups at art museums make up a significantly smaller proportion of museum visitors than they do at science museums (Ellenbogen, 2004; Folk, 2007). There are various reasons for this, including the range of programming that exists from institution to institution (Folk, 2007) or the fact that families may need additional materials to help guide them on their visit (Tenenbaum et al., 2010). Shine and Acosta (2000) learned that at children's museums in particular, exhibition designs are not always conducive to adults feeling comfortable in interacting with their children and with the exhibitions.

As previously mentioned, another reason I am interested in family learning is because I personally do not think that museums as a whole spend enough time thinking about educating and entertaining the adult members of a family. Family programming often only involves engagement for the children, and this does not need to be the case.

During my original interview for the summer internship with Liz Margulies (Assistant Director, Family Programs) at the Museum of Modern Art, the conversation turned to my research. My thoughts on family education seemed to neatly align with Liz's ideas and with what I would be doing as part of my internship. I worked with Liz and five other Family Programs educators during the summer of 2012 and had frequent discussions on art and museum education, sometimes sitting in a cubicle, and at other times walking through MoMA's galleries filled with world-famous works of art. I interacted regularly with people who shared my enthusiasm for education and loved to discuss their ideas, successes, and missteps in the world of art museums. I grew exponentially as an educator and was so inspired to see the work MoMA staff was doing with intergenerational audiences–including the adults.

SPECULATION

Based on my previous experience in the lab over the summer of 2012, I believed the activities in *MoMA Art Lab: People* that would be most successful at engaging audiences of all ages would be the ones that included art-making (the Exquisite Corpse Station and the Puppet-Making Station, both described in-depth in Chapter 4). I believed the different stations in the lab would effectively engage visitors to varying degrees, both with regard to which ages would be using them and their overall popularity. I expected most families to think of the lab as intended for children. I thought that all children would play with the stations in the lab, and that most adults would play with a few of them,

although not to the same extent as the children. I anticipated that at least one adult in my study might not interact with any of the stations and would solely be there so that her child would play with the activities.

RESEARCH METHODS

In December 2012 I performed a case study on the interactive, intergenerational space entitled *MoMA Art Lab: People* at the Museum of Modern Art and the family learning that occurs there. A case study is research that closely examines a single example in order to focus on the full complexities surrounding the situation (Stokrocki, 1997). This is a form of qualitative research that is guided by a question that is open-ended and provides a full portrayal of a specific community, person, or theory, among many other possibilities (Stokrocki, 1997). I believed this in-depth analysis of the lab was necessary in order to tease apart which aspects of the lab made it successful at engaging adult and child visitors alike.

My study included both observations and interviews. I utilized a semi-structured interview protocol, which involved a pre-set list of carefully worded questions to guide the discussion so that I could have some standardization across all interviews (Blessing & Chakrabarti, 2009). This particular form of interview is flexible, as was appropriate for the exploratory nature of my study, and I asked for clarification and pursued topics brought up by the interviewees that were not originally on my prescribed list (Blessing & Chakrabarti, 2009).

To gather my data I began taking observational notes as soon as a group entered the lab. I defined a group as two or more people who entered together, at least one of whom appeared to be over the age of eighteen and one of whom appeared to be under eighteen. The groups consisted of mothers, fathers, grandparents, nannies, and other

adults accompanied by at least one child. My notes included which activities each person engaged with, how long they remained involved with them, significant dialogue or interactions between people, and anything else that seemed notable. I approached most groups after approximately fifteen minutes and asked if I could interview them once right then and once again at the end of their time in the lab.

I chose to wait fifteen minutes before asking to interview the group because I knew that groups were spending, on average, a little over thirty minutes in the lab. This meant that at the fifteen minute mark, they would have settled down and had enough time to explore and understand the space by the time I interviewed them, but their visit would most likely be only halfway complete. I observed nine different groups of intergenerational visitors and interviewed seven of those nine groups. I spoke with both children and adults in all groups unless they were unwilling or unable to be interviewed.

I also interviewed museum education staff who were heavily involved with the lab in some way. I spoke with the two educators in the Family Programs department who designed the labs (Liz Margulies and Cari Frisch) and also with three facilitators who worked in the lab each day (Kristen Roeder, Ali Larkin, Babe Liberman).

The following section is composed of a selection of terms that I use throughout the duration of my thesis. Some of the definitions are common in the field of museum education while others are particular to my study and the MoMA lab.

DEFINITION OF TERMS

Adult – a person who is eighteen years old or older.

Caregiver – used here as any adult in a group; includes parents, grandparents, nannies, and others not explicitly listed.

Child – a person under the age of eighteen.

Group – two or more people who arrived in the lab together and knew each other prior to their visit to the museum; requires at least one child and one adult. This was most often a parent(s) and child(ren), but included any caregiver and child. For my study I chose to label them "groups" and not "families" because I included people who were not related by blood (for example, nannies).

Interactives – materials in a museum that utilize at least one of the five senses in addition to sight (most often touch). Each of the nine stations in the lab (described in Chapter 4) are interactive.

MoMA lab(s) – The interactive learning space at the Museum of Modern Art. Unofficially, the area can be referred to as the "MoMA lab," "the lab" or "the interactive space," among other similar titles. To date there have been five labs with different themes. They have been officially titled *Color Lab*, *Line Lab*, *Shape Lab*, *Material Lab*, and *MoMA Art Lab: People* (the current one). I almost always refer to *MoMA Art Lab: People,* as it is the focus of my thesis. I specify when I am referring to a different version of lab or all of the labs cumulatively.

Station – the lab studied for this research, *MoMA Art Lab: People*, was composed of nine different stations, or types of activities. All of these were interactive in nature (again, see Chapter 4 for full descriptions of each station.)

LIMITATIONS

My parameters for this study were relatively narrow and included only a sample of groups visiting the MoMA lab in December 2012. Because of the low number of participants in my study, this sample may not be representative of all MoMA group/family visitors, nor can it be assumed that MoMA visitors are representative of

other museums' visitors. A case study is meant to be an in-depth study of a particular phenomenon and is therefore not expected to be generalized to other situations.

SIGNIFICANCE

Museum educators can look to what MoMA is doing successfully with intergenerational/family education and apply it to the family programs and/or labs at their own institutions. The Family Programs educators at MoMA were able to develop activities that simultaneously engaged children and adults, with only limited facilitation required by the educators in the lab. Information I gathered from visitors, including directly from them through interviews and through what I observed, is valuable to museum educators who wish to improve family and group experiences at their own institution.

CONCLUSION

This thesis is divided into six chapters. Chapter 2 reviews pertinent literature in order to place my study in the proper context in the field of museum education. Chapter 3 is an in-depth explanation of the methodology I used for my case study of the lab. Chapter 4 describes the lab's nine stations and includes information on the history and development of the lab. In Chapter 5 I analyze the data I collected through my observations and interviews with visitors and museum staff. In the sixth and final chapter, I explore the significance of my findings and suggest further areas of research.

Chapter 2: Literature Review

I divided my literature review into eight separate categories: Defining Family, Defining Learning, Family Learning, Adult Learning, Interactive Learning, Designing Museum Interactive Spaces, Examples of Interactive Spaces, and Technology as a Tool in Museum Education. In many cases, ideas between sections overlap (for example, many interactive spaces make use of technology), but this delineation is the clearest way to present information that shaped how I approached and analyzed the MoMA lab. Within each section I explain why background information is required in that area as it relates to my research.

DEFINING FAMILY

To begin I examined how other researchers defined the word "family" as it applied to museums. I found almost as many definitions as I found articles on the subject, and it became apparent that a lack of cohesiveness made this a more difficult task than I anticipated. Even simple questions like, "What constitutes family programming?" or "What constitutes a family?" have not been satisfactorily answered (Ellenbogen et al., 2004; Folk, 2007).

It is generally accepted by people in the field of museum education that a family requires a child. A study performed by Sandifer (1997) classified families as intergenerational groups and was one of the only examples where a family did not require someone under the age of eighteen. Including families composed of elderly parents with adult children, Sandifer used the idea of a family in a broad sense. Of course, families do not stop being families once the children become adults, so I was a little surprised to find this all-encompassing definition only once. Borun (2008) specified families as being multigenerational groups, and that the group *could* know each other through family

relations, but that was not a requirement. They could also know one another through more general personal associations, but have no blood ties. These "family" groups include nannies or close personal friends, for example. Some researchers and authors require there be an adult and a child in order to be considered a family group, but do not specify the age of the child (Dierking, 1989). Others identified that there had to be a child between the ages of five and twelve for there to be a family group (at least for the purposes of their research), and only refer to parents (ruling out grandparents or other adult caregivers) (Zimmerman, Reeve, & Bell, 2008). However, even researchers who did not specifically mention children still appeared to only use data with children in the family group, with Sandifer (1997) being the one exception.

For my research I focused on groups that contained at least one child (a person under the age of eighteen) and one caregiver (a person over the age of eighteen) who knew and appeared comfortable and familiar with each other. I use the word "caregiver" in this study, implying that the adult is not limited to mothers and fathers, but includes grandparents, nannies, and other adults with whom a child might have a relationship. The terms "adult" and "caregiver" are synonymous unless otherwise noted for the duration of this thesis. To be as inclusive as possible, I used a broad definition of family, borrowing from Borun (2008) the notion that blood ties were not required, and included nannies and non-immediate family members. I limited my definition by requiring that at least one child be in the group, unlike Sandifer (1997), but in line with the rest of the sources. Because of my extended definition, I refer to these intergenerational visitors who arrive at the museums together as "groups" and not as "families," since I did not limit my research to people who are strictly related to each other. Although I did not use the word "family," all of the ideas in this section (as well as those in the section entitled "Family Learning") are still relevant and applicable to my research and served as guides throughout my study.

DEFINING LEARNING

The definition of learning is complex and multi-faceted, although there is more uniformity compared to the definition of family. Sachatello-Sawyer et al. (2002) summarized various learning experts and stated that "….the ultimate goal of learning is to create meaning in our lives or integrate a new insight into an existing base of knowledge" (p. xxiv). The authors define museum education as any activity that facilitates knowledge or experience for the visitors at a museum.

According to Sachatello-Sawyer et al. (2002), learning can be divided into four different categories: behavioral, cognitive, affective, and social. Behavioral learning involves learning new physical skills and can take place in the museum when visitors are taught how to paint, for example. Cognitive learning is the comprehension and organization of new information, which people do when they read and hear ideas about art and artists. Affective learning includes personal and/or spiritual growth, as well as building self-confidence, and is accomplished by a visitor becoming self-assured in their ability to navigate galleries on their own and understand the art. Social learning involves building social relationships, interacting with others, and developing a sense of cultural or community pride or values.

The contextual model of learning is a means of understanding how learning occurs (learning in general, as well as in museums). This theory identifies three contexts in which all learning occurs: the personal, socio-cultural, and physical (Falk, Dierking, & Adams, 2011). The personal context is the previous knowledge, skills, interests, and beliefs of the learner. All these affect how a learner perceives and classifies any new piece of information. The socio-cultural context has two aspects: the micro and the macro. On the large scale, the beliefs of the society in general and the culture in which learners live will shape how they learn. On a smaller scale, her immediate social group,

as well as those who are around while she is learning will also impact how she learns. The final part of the contextual model of learning is the physical context, which is the actual environment where the learning occurs. For my research the museum, and more specifically the lab, is the setting where the learning takes place.

FAMILY LEARNING

Originally, interpretation and understanding was the responsibility of the viewer– not the museum staff (Wolins, 1989). The current viewpoint in many institutions is that education is not merely a *part* of a museum, but is the *point* of a museum (Johnson, 2009).

Museum staffs now consider how and why families learn in informal learning institutions like museums in order to better serve that audience. Multiple children's museums, including the Indianapolis Children's Museum and the Please Touch Museum, have changed their mission statements from focusing on children to focusing on the entire family (Borun, 2008). This is clearly a shift revealing that children are still an essential part of the audience, but that reaching the adults is a goal as well. As detailed below, much of the research on family learning has occurred in children's museums, science museums, history museums, and aquariums.

Family audiences comprise the single largest group of museum visitors (Bingmann, Grove, & Johnson, 2009). Therefore, it is important for educators at museums to know how to best reach this heterogeneous audience since they make up such a significant portion of overall visitors. These same authors also describe how programs at many museums are aimed at particular age groups (lectures for adults, tours for school children, story time for toddlers, etc.), and not at intergenerational groups. Bingmann, Grove, and Johnson (2009) point out that wall labels are generally written in a

lecture-like style for an audience of people with similar levels of education, as opposed to labels that are written to generate intergenerational conversation.

Shine and Acosta (2000) examined the social interaction and play that occurred between the parents and children in a family at a children's museum. They learned that adults often engaged in forms of play that were counter to the kind of play their children wanted to engage in, despite repeated resistance from their child. The adults wanted a more structured form of play, often with components of explicit learning (such as counting), while the children wanted more imaginative play. To reach both audiences, museum educators need to design interactives and exhibits so that all parties involved are comfortable and confident in how to engage with both the exhibit and with other members of their family.

Zimmerman, Reeve, and Bell (2008) researched learning as families explored a science center, and found that the designers of this exhibit were more successful at engaging everyone in a group composed of different generations. One of the reasons for its success was that the exhibits encouraged conversation, which was distributed among both the children and the adults in the group. Sources of information came from children, adults, and the museum staff (via labels, for example). Adults and children would alternate between various roles, which included skeptic, expert, and memory-prompter. A study cited by Kropf and Wolins (1989) determined that parents who let their children lead the discussion at times (changing roles throughout the conversation) and parents who spoke to their children as peers helped their children discover *how* to learn better than parents who always dominated the conversation. I looked for different roles that the adults and children played in the MoMA lab and examined how they changed throughout the duration of their visit. This same study by Kropf and Wolins (1989) also confirmed

that activities designed so that children and parents were both engaged were effective as learning tools.

Kropf and Wolins (1989) describe how Vygotsky (a highly influential psychologist in the field of learning theory) believed that learning existed as shared experience between two (or more) people that was social in nature. A more knowledgeable or experienced person teaches the learner and helps guide her to a new understanding or skill. As the learner gains more knowledge, the teacher gives her more control, causing the roles to constantly shift between the learner and teacher throughout the experience. The subject matter could be about any topic, but the learning itself occurs as an interaction between two (or more) people in a social situation. Kropf and Wolins (1989) stated that it is well-established that adult role models heavily influence a child's learning and development, and that this concept has led researchers to focus on how information is taught within family groups.

Influenced by Vygotstky's ideas on learning, Kropf and Wolins (1989) developed a set of guidelines for family educational activities. They believe that the activities should engage both generations simultaneously; parents should not passively watch their children. The activities should also promote conversation and be open-ended so that people of all knowledge and skill levels can participate. Black's (2005) research is in agreement with many of the concepts in the guidelines, and he stated that

> while most of the research has focused on families rather than other social groupings, the evidence suggests that the exhibits that most effectively engage an audience are those encouraging social interaction, discussion and involvement within and beyond the groups involved. (pp. 202-203)

Intergenerational spaces and exhibitions can only be successful when they meet the goals of both the adults and children, and research shows that their goals are not

entirely dissimilar from each other (Black, 2005). Both want to be able to touch and use interactive elements, computers, and activities. Children and adults see museums as a chance to learn in addition to having fun, but children do not want it to seem too much like school. Children look to the adults for support and help, but adults themselves also need some assistance in knowing the best way to support their children. Neither parents nor children want there to be much reading in exhibitions, at least partially because they must then address issues of reading ability.

Bingmann, Grove, and Johnson (2009) restated characteristics intended to enhance family learning as originally described in a paper by the Family Learning Forum. The Family Learning Forum is a project by the USS Constitution Museum that conducts research in order to develop models for family learning. Children and adults need instruction in order to feel comfortable, but should be given the freedom to experiment without risking embarrassment. Both children and adults should be able to contribute and feel confident in their abilities and the activity should ultimately empower all visitors. Additionally, all visitors should learn appropriate to their level of knowledge.

Continuing the list provided by Bingmann, Grove, and Johnson (2009), there should be creative yet purposeful play that facilitates experimentation. Open-ended questions and opportunities for discovery should be provided to promote positive learning behaviors. A degree of collaboration is important so that the experience engages the visitors as a group. They can talk about the experience or recreate it later, which would further extend the learning. Related to this concept of remembering and discussing the visit is the recommendation that opportunities to reflect should be included. This lets families celebrate their accomplishments (a take-home component is a way to provide a tangible reminder of the experience). A transferable skill, one that can be repeated at home, should be incorporated into the experience as well. Finally, museum educators

should link to other resources that families can use to learn more: whether that means a library within the museum, another site in the community, or even a television show, to reinforce that learning opportunities are everywhere.

The Philadelphia-Camden Informal Science Education Collaboration (PISEC) was what inspired the Family Learning Forum, and this organization also identified a list of seven characteristics of family-friendly exhibits (Borun, 2008). The exhibits should be multi-sided so families can cluster around them and be multi-user so more than one person can interact with them at once. All aspects need to be accessible for both children and adults. There should be more than one possible outcome, which serves to encourage group discussion. The exhibit needs to be multi-modal and appealing to various learning styles. Any text should be blocked into easily understood segments and, lastly, the exhibit needs to be relevant to the visitors' previous knowledge and experience.

Haas (2007) also states that adults learn differently from children, but points out that there are many different learning styles, regardless of age group. Goals of adults, particularly when they differ from those of children, will be discussed more fully in the following section.

ADULT LEARNING

I separated adult learning as its own area of research, even though adults are clearly part of the family, in order to emphasize that the adult subset of the family group has different preferences from those of children. Black (2005) found that adults differ from children in their motivations for learning. They bring with them to the museum an entirely different level of previous knowledge, personal experiences, motivation, and ability for self-directed learning. Just like children, they want to avoid situations where they feel inadequate, and do not want to be talked down to either. Adults want their prior

knowledge appreciated and taken into account. Adults seek out social learning opportunities, including ones with some facilitation by someone more knowledgeable.

When deciding upon a leisure activity, adults tend to use criteria to judge the experience (Sachatello-Sawyer et al., 2002). They want to feel challenged with a new experience, but also feel comfortable in the environment and able to socialize. Adults want to learn and actively participate. Research by Sachatello-Sawyer and Fellenz (2001) confirms many of these findings, including the fact that adults want hands-on activities and interaction with others. Although it is a common perception that children learn best with tactile activities while adults can be taught best by listening to a lecture, this is a misconception (Bingmann, Grove, & Johnson, 2009). Many learning theorists believe that people's learning styles do not change with age, and therefore many adults also learn through hands-on activities. Consequently, incorporating interactive learning components does not mean that the activity is only going to help children learn; it also reaches a more diverse audience of learners of varying ages. Along the same lines, play is often thought of as something that only children do, yet Grenier (2010) states even adults can learn from play, especially in museums.

Sachatello-Sawyer et al. (2002) summarize important aspects of learning from adult learning expert Rosemary Caffarella. A few of these characteristics include that adults learn best when their background knowledge and experiences are recognized, and that new information can be built upon this base. It is best if this information can be applied to current situations. As mentioned repeatedly, there is not one single adult learning style, and all adults have their own preferred modes of learning. All of the roles adults play (father, daughter, friend, worker, etc.) shape how and why adults learn. They want to learn both independently and collaboratively.

Adult learners in museums can be divided into four categories (Sachatello-Sawyer et al., 2002). Knowledge seekers want to learn new things, and they make up the largest portion of adult museum-goers. Socializers go to museums for the social interactions, and may visit the institution with family members, neighbors, or friends who share similar interests. A subset of this group is the "tag-along" who is not particularly interested in the subject matter, but goes to the museum to spend time with a friend or family member. The third category of adult museum learners is the skill builders. This group of people wishes to improve some skill, which may be related to their job or a number of other areas that interest them. The final category of adult visitors is that of the museum lover. This group is comprised of repeat visitors who often attend many programs and classes and frequently volunteer as well.

INTERACTIVE LEARNING

Interactive learning does not necessarily mean physical involvement. It can also involve engaging the visitor's mind in a real and meaningful way (as opposed to passive listening) (Black, 2005). Museum staff members, particularly the educators, have been more actively encouraging physical and mental participation in the museum in recent years. The term "interactive" has various meanings, but is generally accepted in museum education to mean an exhibit with a component that requires action from the visitor and a thoughtful response. A component that is only tactile does not automatically make it interactive, as interactivity necessitates a mental response as well as one that is physical (Grove, 2009).

As previously mentioned, both children and adults want hands-on activities when they learn (Black, 2005; Sachatello-Sawyer & Fellenz, 2001). Interactivity has not always been a part of museums, and the type of teaching and learning that occurs has shifted in

the recent past. For most of their existence, museums have had a focus on collecting, as rather than teaching, but the educational role has become more significant in the past twenty years (Black, 2005). Science and children's museums have been at the front of the movement to creating learning experiences for group audiences (Borun, 2008). According to Black (2005), museum staff previously thought that learning could best be accomplished by providing didactic information. This type of educational tool is most effective when members of a group all have similar levels of interest and knowledge. However, by design, museum exhibitions are created for a mass audience, composed people of all ages who have vastly different backgrounds. Since visitors want individualized experiences, a single, prescribed method of education, such as didactic wall labels, is not going to be a successful route to learning for many of them. This type of approach is what some individuals want and need when learning new information, but it should be provided along with a buffet of alternate approaches for the diverse visitors of a museum. An example of an alternative approach would be an exhibition that provides an experience-based, hands-on art-making activity in addition to a wall label and a gallery conversation led by an educator.

Borun (2008) states that the preferred method of imparting knowledge is not lecture, but conversation. Museums provide some information (such as through gallery note) but the rest of the discussion comes from the background and interest of the visitor. She also describes the importance of collaboration, meaning that an interactive exhibit actually requires the use of multiple users, creating a communal experience. Therefore, spaces must be designed to accommodate this.

Considerable research has shown that interactions that occur within a group strongly influence visitors (Falk & Dierking, 2008). In fact, even interactions with those outside of a visitor's social group potentially cause a profound difference in meaning-

making and the experience as a whole. The interactions may be with museum employees or other visitors from another group (Falk & Dierking, 2008). After revamping exhibitions to be more family-friendly and group-oriented at The USS Constitution Museum, Kiihne (2008) discovered that these changes were highly successful at engaging adult audiences (meaning adults who did not come as part of a family or intergenerational group). This speaks to the importance of group learning, whether it is a group of children, a group of adults, or a mixture of the two. Group learning is not just for family audiences.

A successful interactive is often both physically and intellectually accessible, in addition to inciting discussion and thought (Grove, 2009). The components should be simple, intuitive, and designed with an identifiable learning objective. The interactivity should serve to expand interpretation, present information unable to be displayed in other ways, or speak to an age group not addressed in other parts of the exhibition.

DESIGNING MUSEUM INTERACTIVE SPACES

It is not enough to know that interactivity is both what visitors want and is an effective way to learn in a museum; spaces and galleries must be specifically designed with interactivity in mind, as well as the goals of visitors and educators. Falk and Dierking (2008) found that visitors have three expectations when they visit a museum, regardless of whether they arrive as part of a group or alone. The first expectation is that the museum will present a variety of interesting information and experiences that appeal to people of all ages, levels of knowledge, and interests. The second expectation is that they will be mentally (and perhaps physically) engaged and will be able to connect on a personal level to the objects or ideas in the museum. The third expectation is that when visiting in groups, people will be able to have an enjoyable shared experience that involves collaboration and conversation, even when members of the group have different

interests and levels of knowledge. This is a tall order, but many researchers, including Falk and Dierking (2008), have learned what works and what does not when designing interactive spaces.

Heath and vom Lehn (2008) agree that museum learning is often social in nature, and note that designing exhibits which can only be used by one person is not logical. Some interactives are designed for use by multiple visitors simultaneously, but not actually collaborating with each other. The researchers recommend more exhibits that allow for co-participation or co-engagement. However, merely designing exhibits that leave enough room for groups to play together may not be enough, as Shine and Acosta (2000) discovered; they found that parents felt uncomfortable when they were out in the open and expected to play.

Kiihne (2008) discusses the spatial element that affected the successes, failures, and modifications at the USS Constitution Museum. In his research on this institution, Kiihne focused on family and social learning, and suggests making "pods" of learning that contain interactive elements people can group around and engage with together. He did not say the pods were designed to make people feel more comfortable by providing more privacy and separating themselves from others (as recommended by Shine and Acosta (2000)), but were meant to encourage conversation within a group. In contrast to Shine and Acosta's findings, Black (2005) states that visitors want to be able to "people watch" and learn from other groups how to use the space or activity. Designers must find either a middle ground or do more research to see if private or open spaces are more effective at encouraging family learning.

Black (2005) states an important aspect of museums in general is a welcoming environment. I posit that this is especially true when museums ask people to do something they may not have expected upon entering the museum. Museum staff want

people to be in the best possible frame of mind when they engage themselves with the collection, and this can only be done if visitors feel welcome and comfortable. Visitors need to feel confident about where to go and what is expected of them. Museum staff can aid visitors in feeling comfortable in navigating the museum by being mindful of static elements of the building itself (such as clear signage that directs and instructs visitors). Educated, personable staff should also provide an orientation at the beginning of the visit. Falk and Dierking (2008) assert that people usually visit a museum voluntarily and have the freedom to choose their own paths once within the building. Meaning-making is therefore strongly influenced by their ability to successfully orient themselves within the museum. Confidence in being able to navigate the space is highly correlated with how much the visitor learns.

Spaces should be built within the exhibition where museum staff can interact with visitors, and enough stations should be designed so that lines do not form, if at all possible (Black, 2005). It is also important to be inclusive and welcome people with disabilities and to shape the space so that all individuals can interact in the space without undue inconveniuence (Black, 2005). Exhibition materials should be placed at various heights, not only for children, but also for those with disabilities (Black, 2005).

Levinson et al. (2008) suggest installing chairs of various heights to demonstrate that the space is meant for people of all heights (and therefore implying that the activities are for all ages as well). If an area is intended for intergenerational audiences, adults often need to be explicitly encouraged to engage with the interactives, or be provided with very obvious hints that the area is to be used by them as well (such as taller chairs). Borun (2008) states that “tiny tot lands” with all miniature components send a signal to adults to sit passively elsewhere as observers. Related to this, Gaskins (2008) examined how the complexity of an interactive exhibition was directly related to the amount of time

the caregiver spent interacting with her children. If the exhibit appeared easy to understand, the caregiver used a hands-off approach and let the child interact without any help. If the caregiver thought the child might need assistance, she provided it. This research shows that interactives must be designed with a range of ages in mind if all family members are expected to engage them. Exhibits that are "too easy" mean that the adults (and possibly older children) will not get involved. This limits the amount of family conversation and learning. Adults want exhibitions to keep themselves entertained for their own benefit in addition to the younger visitors accompanying them (Black, 2005).

Black (2005) states that seating is an important aspect to the design of any museum, although for slightly different reasons than described by Levinson, et al. (2008) and Borun (2008). Interactive spaces can be a quiet area for rest and relaxation, or can be used to continue the art experience by providing books and other materials. Since it has been determined that most visitors come to museums as a group and want a social experience complete with conversation, a seating area is a natural addition (Black, 2005). Kiihne (2008) recommends that seating be arranged in a circle or around a circular table to encourage conversation.

Borun (2008) urges exhibition designers to move from creating for individual users to creating experiences for multigenerational groups. She describes how educators have been more hands-on in exhibition development, bringing with them their understanding of the learning styles of different age groups, and implementing this knowledge into the design.

The following section describes four different interactive spaces at four museums in the United States. All of these implement various concepts and components just described.

EXAMPLES OF INTERACTIVE SPACES

After learning about why museums should have interactive spaces and then reading about how to best design a space with an interactive component, it is logical to examine institutions that actually put these ideas into practice. MoMA is not the only museum to have an interactive space, and below are descriptions of four other such institutions. This is not a comprehensive list, but all these spaces have had scholarly material written about them and their development. Many of the spaces were evaluated by educators, which led to improvements and aided in understanding how they are used.

The USS Constitution's *A Sailor's Life for Me?*

Kiihne (2008) details his experience with the development of the exhibition entitled *A Sailor's Life for Me?* at the USS Constitution Museum in Boston, which has proven to be an example of how good an interactive exhibit can be. This institution's main audience was family visitors, and the staff eventually realized that their exhibitions, therefore, needed to be designed with this particular group in mind. They looked to children's and science museums for guidance, as researchers and the staff at those types of institutions had done a large amount of research in the area of family learning.

A particular focus was placed on producing wall labels that were effective at encouraging family conversations; all text was limited to fifty words or less per panel. The staff learned that although questions promote discussion, visitors require some content in the text for dialogue to actually occur. Among other guiding principles, the designers wanted to incorporate a broad range of learning styles and created exhibition "pods" where various elements (text, artifacts, etc.) all related to a central idea and were located in a single grouping. Pods were particularly effective at engaging families and encouraging discussion. Along the way the museum staff researched the effectiveness of the exhibitions' ability to evoke conversations and family satisfaction. They interviewed

over 2,400 families during a three-year period and continuously fine-tuned the exhibition based on feedback. At all times during the development of the exhibition, the museum staff used a list of characteristics of family-friendly exhibitions created by PISEC (previously described in the Family Learning section) to guide them.

Another guiding principle in *A Sailor's Life for Me?* was constant research and evaluation, and then modification of exhibits until families were consistently giving it high ratings. Families spent an average of twenty-two minutes in this interactive exhibition, as opposed to the seven minutes in a more traditional exhibition at the museum. Borun (2008) describes *A Sailor's Life for Me?* as an incredibly successful exhibition, with longer time spent in the space, more family interaction, and higher visitor satisfaction than found at more traditional types of exhibitions without interactive components. Kiihne (2008) describes the end result favorably, with the interactive stations being successful in encouraging learning, with an emphasis on the importance of conversation amongst visitors to achieve similar sucess.

The Speed Art Museum's ArtSparks Interactive Gallery

The ArtSparks Interactive Gallery is an interactive space at the Speed Museum in Louisville, Kentucky and is also highly successful (Adams, et al., 2003). Cynthia Moreno, the Curator of Education at the museum, describes it as a child-centered space that includes twelve different stations in addition to studios, an electronic art room, and a room for preschool-aged children. It is designed so that "hot" stations (incorporating physical activity) were balanced with "warm" stations (requiring less activity) and "cool" stations (limited physical activity; more intellectual in nature).

There is an emphasis on interest and curiosity instead of merely providing large amounts of information. The designers did not want gratuitous interactivity, but a

purposeful experience that provided emotional or intellectual ties to objects and other experiences. The space is designed for creative play and intended to help visitors make connections to their own lives.

Research showed that parents with young children were only visiting ArtSparks and not visiting the Speed's other galleries because they were afraid their children either would not behave appropriately or would not be interested. Through casual observation since the study, Moreno suggested that after multiple visits, families appeared to be more comfortable bringing their children into the galleries. ArtSparks also provides children's books and comfortable reading areas, in addition to cards that suggest activities to be done at home. Visitors may also select Art Backpacks to take into the galleries and thereby enjoy interactive learning directly in front of the art. The success of ArtSparks also led to the development of Family Activity Centers within exhibitions, as opposed to separating the interactives from the art (ArtSparks is separate). After an evaluation of the space, researchers learned that the visitor experience was enhanced in many ways. Visitors of all ages had shifts in understanding art and the experience was socially meaningful. Additionally, connections were made between art, experiences, and personal lives.

MASS MoCA's Kidspace

The interactive space at the Massachusetts Museum of Contemporary Art, called Kidspace, is designed quite differently from the previously mentioned interactive spaces (Adams, et al., 2003). It is actually a gallery within the museum that has two exhibitions a year showcasing contemporary artists. The artists use all forms of art media, some of which are interactive, and the space includes an art project related to the exhibition. The

goal of Kidspace is to increase creative and critical thinking both in the galleries and the classroom for elementary and middle school students.

An example of an interactive work of art in the space is Camille Utterback's *Engaging Space* (2002), where images were projected onto a screen. The images were then manipulated by visitors as they moved in front of the screen. Visitors were extremely enthusiastic and spent a long time in the space and it was effective at getting audiences involved.

However, many of the works of art (including *Engaging Space*) were not meant to be tactile. The visitors moved their bodies in front of the art and their motion affected what was being projected on a screen. Visitors were not supposed to actually come in direct contact with the piece (they interacted through movement only), but some visitors did not realize this and touched the screen with their hands, which became a recurring problem. Another issue was that some visitors spent time trying to figure out how the piece "worked" (how their movements affected the art), but after deciphering the mechanics, they would quickly move on without really thinking about the piece as a work of art. *Engaging Space* was incredibly successful at getting visitors to interact with the art, but interactivity for interactivity's sake is not the point. The educators and curators for this space continue to try to clarify what the word "interactive" means in Kidspace.

Some visitors were hesitant to engage with the art because they were unsure how to do so. This hesitation was more likely when the visitor felt that the interaction was public and could possibly lead to an embarrassing situation, similar to situations at the children's museum described by Shine and Acosta (2000) where parents did not want to play with their children out in the open. People that feel "on display" are less likely to interact.

Although interaction with the work of art is important, the educators at Kidspace wanted students to think about the content and interpret the art as well. Visitors moving their bodies and realizing that they were having an effect on the art was one of the goals, but the educators intended that aspect to only be part of the experience–not the entire experience.

The Contemporary Arts Center's UnMuseum

The successes and failures at the UnMuseum, the interactive space located on the sixth floor of the Contemporary Arts Center in Cincinnati, are also notable (Adams, et al., 2008). This space did not open until 2003, but multiple prototypes were developed and tested beginning in 1999. At the UnMuseum artists create interactive artworks for children. The goal is to present contemporary art as physically and intellectually accessible to children and their parents. It also serves as a place where families can be loud and touch things within the museum. Through experience, the educators at the Contemporary Arts Center knew that children loved contemporary art, and decided to commission art that was intended specifically for them. They were also hoping that if children liked the art, the adults would like it as well, and it would be an enjoyable experience for all involved. All of the exhibitions described here are prototypes that were tested prior to the opening of the official UnMuseum.

The three exhibitions described by Adams et al. (2008) all had high visitor satisfaction, but there were often issues with people not understanding that the exhibition was actually art rather than a playground. An exhibition entitled *Leaf Leap* (2000) by the artist Kim Abeles required frequent repairs because of roughhousing, but was successful in educating visitors on leaves and the artist's process. Students were encouraged to consider their own opinions on nature and leaves. In an attempt to signal appropriate

behavior in the space, educators suggested that merely changing the title to *Leaf Lounge: A Place for Quiet Contemplation* might correct the behavior issues. It was a highly successful exhibition and broke all attendance records for school groups.

An important observation noted during the UnMuseum exhibition *Above and Below: The Hypar Room* (1999) was the difference between children's behavior in the exhibition when they were with a docent as opposed to their behavior when visiting with their parents. With a docent, children behaved well and there was a discussion about issues related to the art. When given permission to play and explore, children did so with abandon. However, when children came with their parents, the gallery turned into a playground and some visitors failed to see *The Hypar Room* as a work of art.

Another of the UnMuseum's exhibitions, entitled *Color Complex* (2001) by Paul Tzanetopoulos, divided the floor into five darkened rooms. Visitors could flip various switches, and experiment with mixing colored light. The UnMuseum staff collaborated with teachers to connect teacher resource materials to the classroom, and the UnMuseum again broke school group attendance records.

I have already discussed technology as part of the interactive artwork *Engaging Space*, which used projected images that were affected by visitor movement. I now focus on technology more directly, citing examples of how it has been used in museums.

TECHNOLOGY AS A TOOL IN MUSEUM EDUCATION

To understand how technology functions within an interactive space, background information on the general use of technology in the museum is necessary. Many interactive spaces make use of technology, including Kidspace, the UnMuseum, and multiple versions of the MoMA labs. Technology is not incorporated into the museum for the sake of incorporating technology; it is used to enrich visitors' experiences (Tallon,

2008). If designed well and used properly, digital media aids in learning and increases interaction for visitors of all levels of knowledge (Falk & Dierking, 2008).

Tallon (2008) states that new and emerging technologies enable museums to create innovative experiences and enhance familiar experiences in unexpected ways. In particular, handheld technologies, such as the iPad, provide users a more personalized experience by enabling them to choose the content they wish to access, at a speed that works best for them, and for as long (or as short) as they desire. These technologies are ones many visitors already have experience with, and since visitors are literate and comfortable with them, museums can easily tap into this knowledge. If the technology incorporated into the museum can be used effortlessly, it assists in conveying information and ideas to the visitor (Samis, 2008). Technologies meant to optimize visitors' experiences also can support their learning before, during, and after the museum experience (Falk & Dierking, 2008). The Family Programs educators at MoMA developed a program for the iPad entitled *MoMA Art Lab* (described more in Chapter 4). Although an iPad with this program loaded on it is a station in the current MoMA lab, it is also available for purchase in the online iTunes Store. This enables visitors that enjoyed the program to purchase it and continue at home their experience begun at the lab.

Falk and Dierking (2008) demonstrate that there are a wide variety of factors that influence how a visitor makes meaning in a museum, with the most important one being the visitor's personal context (prior experiences, knowledge, interests, etc.). This does not mean that all other variables (exhibition content, spatial lay out, etc.) are unimportant. Rather, this indicates that the other variables, such as technology, let visitors customize their visit. Those that are comfortable with technology can use it to create a different museum experience than they would have otherwise.

Heath and vom Lehm (2008) warn of potential pitfalls from using technology in interactive exhibits. They suggest that employing computers, which they state is what a large number of interactive exhibits often use, generally only allows for a particular type of interaction. They assert that when a visitor is interacting with an exhibit utilizing an electronic component, that person is often not interacting with people. Heath and vom Lehn (2008) say this is problematic because they see co-participation and collaboration as critical to both learning and engaging in the museum.

They point to multiple examples of exhibits that were designed with a single user in mind (one example is a computer-based quiz, where one person touches a screen to select his answer). As described throughout this literature review, people learn in different ways and not every interactive requires a social component. There may be flaws with the computer-based quiz, but its inability to make visitors work together is not a flaw unless the developers intended the exhibit to include social learning in that way. Heath and vom Lehn (2008) also describe an exhibit with an interactive electronic game meant to be used by four people simultaneously. However, the game is actually played independently (but simultaneously) with the other players, and the visitors are not co-participating. They are participating at the same time with the same game, but their actions are not dependent on those of anyone else, nor do they need to speak with the other players. This is an exhibit that was intended to be social, but failed.

Heath and vom Lehn (2008) state that the type of interactivity that is promoted with technology is very limited. There are limits to using technology, but their definition of interactivity, which seems to require social interaction, has a very small scope compared to other researchers in the field. However, not all the technology incorporated into museums has been used in a way that best fosters learning, and designers should be

aware of the failings of other exhibits in order to avoid repeating unsuccessful types of exhibits.

Hornsby (2007) cites an example of technology in the museum that avoids some of the issues detailed above. She describes an electronic guidebook on a PDA (personal digital assistant), similar to other handheld self-guided tour devices. Two people each get their own device, but are linked together electronially. There are two channels. On one, audio clips are selected by the listener. On the other channel, the visitor can hear the audio clip that their partner chose. The visitors can toggle back and forth between choosing their clips or eavesdropping on their partner's channel. Each guidebook only has one earbud, enabling visitors to speak and interact with the other easily, even while listening to the audio clips. Evaluation showed that visitors were likely to make personal responses and discuss information with each other, and that the "eavesdropping channel" fostered social interaction between visitors.

Sayre and Wetterlund (2008) describe many situations where technology has been useful to a group of visitors. For example, audio tours using electronic devices aimed at a family audience are a popular commodity in museums today. There is some concern that audio guides interrupt families' (or any visitor's) natural interactions with each other, and this is problematic. However, some guides are now prompting families to stop and talk at some points, and enable them to move at their own pace, correcting the previously stated problem.

CONCLUSION

There are many aspects to interactive spaces that need to be understood before attempting to make a judgment about what qualifies one of these spaces as being successful. These spaces are a rapidly growing component in museums, but the research

on them has been scarce until the past few years. That being said, the goals of these spaces, including family learning, are not new and there is a plethora of research in many of these areas. This chapter has been a summary of information relevant to the MoMA lab, laying groundwork to put my research in proper context.

Chapter 3: Methodology

A Qualitative Study

As previously mentioned, I observed that many museum events and programs intended for families did an inadequate job of engaging the adult family members. I wanted my thesis to examine a situation that actually included multiple generations learning together in a museum. While researching this topic, I interviewed for an internship with the Family Programs department in the Museum of Modern Art, and then explored their family learning options online. I read about the MoMA lab and loved what I saw. I hoped that museum visitors truly used the space as was claimed on the website. MoMA eventually offered me the position, and during my time as a facilitator in the lab over the summer of 2012, the claims of the website were supported by what I experienced. It had substantial attendance numbers and families with children of all ages were using the lab. But more importantly to me, the parents almost always engaged with their child *and* with the activities while in the lab. It was unusual for an adult to sit passively or text on his phone while his child played. In fact, adults even visited the lab by themselves and played with the activities. Additionally, the majority of visitors stayed in the space for at least thirty minutes, showing that the lab engaged people for an extended period of time. I immediately told my superior at MoMA about my desire to use the lab as the focus of my thesis and she granted me permission to collect data (Appendix A).

Qualitative research (e.g., a case study) is guided by an open-ended question, such as my question regarding which aspects of the lab make it effective at engaging intergenerational audiences (Stokrocki, 1997). Collected data can take many forms, such as interviews, observations, or documents, which are combined to tell a comprehensive

story (Thomas, 2009). I describe my tools in more depth in the Data Collection section below.

For my research I examined the lab more methodically than my informal observations over the summer. I wanted to investigate how families interacted with each other and with various components of the lab, as well as learn about its creation and the continued development of the space. This examination could occur most easily by placing myself in the space and directly observing and speaking with those individuals who used the lab and those who designed, developed, and maintained it. Interviewing visitors made it possible to gain an understanding of what they thought of the experience and the lab as a whole. These discussions also provided insight in to what families were looking for when they visit a museum. Interviewing the staff that worked in and developed the lab deepened my knowledge about what they hoped to accomplish with the space. I wanted to determine if the groups in the lab were actually achieving the goals stated by the museum employees, and if the goals of the employees and visitor groups coincided.

A case study was therefore the most appropriate design frame for my research. It is a type of research in which a phenomenon is examined within the confines of a particular system in its natural context, with as little disruption as possible to the environment (Swanborn, 2010). To accomplish this I sat within the lab in an unobtrusive spot and only interacted with the families when interviewing them, or if they happened to come up to me in the natural course of their play.

I closely examined a single example in order to focus on the full complexities within the situation (Stokrocki, 1997). This framework lets the researcher concentrate on social interactions and nuanced details of the case and leads to an understanding of how the participants within the case view the situation. The opportunity exists to see multiple

realities; that is, viewpoints and interpretations held by the various participants. Swanborn (2010) states that collecting beliefs and experiences from different populations, as I did by speaking with both visitors and staff, is one of the case study's clear advantages.

By choosing to focus on a single case, I was able to examine the intricacies of a specific situation, at the expense of broader generalizations to other environments (Thomas, 2009). Case studies involve looking at multiple aspects of one particular environment; most of these aspects are entangled and cannot be fully separated from each other. Therefore, changing just one component of the situation (location, participants, etc.) potentially changes the entire environment because of the interconnectedness among all components (Swanborn, 2010). The MoMA lab has had various iterations at the Museum of Modern Art, with focuses on color or line, for example. Themes and patterns I uncovered are particular to *MoMA Art Lab: People* and can not accurately describe the previous versions of the space because of the changes in population and subject matter (among many other variables).

For research to be considered valid, one needs to demonstrate that the data and analysis actually relate to the concepts being studied (Mason, 2002). Validity of data generation relates to how well the type of data I gathered addresses my ultimate research question (Mason, 2002). Using more than one type of data is called triangulation, and the more evidence there is to corroborate a theory, the stronger the theory (Thomas, 2009). Triangulation forces a researcher to see a situation from multiple viewpoints and I have incorporated several tools into my design for this reason. Different tools do not produce the same type of data, so using multiple types of data shed light on various parts of my research question (Mason, 2002). To be clear, by using different tools, I am actually examining different components of a situation–not necessarily looking at the same

component from different viewpoints (Mason, 2002). I triangulated my data by observing and interviewing families, as well as by interviewing MoMA staff members.

When conducting a case study, there are three roles that the researcher may take: that of a *complete participant*, who actively engages with the population in the natural environment; the *observer as participant*, who does not interact with the population and merely watches the participants; and the *participant as observer*, who both participates and observes and falls somewhere in between the two previously named roles (Thomas, 2009). I acted in the role of the participant as observer. I did not limit myself to merely watching the interactions in the lab, but interviewed the participants and occasionally interacted with them in the lab if they initiated contact. All these things are done with the intention of understanding this multi-faceted environment.

DATA COLLECTION

I used two data-gathering tools: the interview and an observation notebook. I spent approximately six hours spread over four days (December 2, 3, 5, and 6) in the lab observing and interviewing the groups and staff. This does not include the multiple hours I spent waiting in the lab for families to enter, which I estimate to be approximately five hours spread over the four days. I interviewed one museum employee by phone two weeks after the observation period by phone (December 18).

Research Population

When choosing groups to be included in my study, I chose the first group that entered the lab after my arrival into the space. As soon as that group left and my observations and interviews with them were over, I chose the next group who entered the space as my new target. For my research purposes, I defined a family as a group of at least two people, one who appeared to be under the age of eighteen and one who

appeared to be over the age of eighteen. This included actual family groups, such as a father and his daughter, as well as nannies and their charges. Ideally the entire group needed to speak English, which I was able to determine when the facilitator greeted them and gave the group an introduction to the space upon entry to the lab. After observing them for a period of time (approximately fifteen minutes), I interviewed the group (all adults and children, if possible) if they gave me permission. If there was not a legal guardian for the child, I only interviewed the adult. I observed nine families, seven of which gave me permission to interview them.

I also interviewed facilitators of the lab who worked on days I visited the lab. They spend more time in the lab than anyone else and also have a direct impact on the visitors since the facilitators actually interact with every person that enters the space. From my experience over the summer, I knew that the facilitators suggest ways to modify stations or give ideas for new ones, and therefore actually have a role in the design of the lab as well. The three facilitators I interviewed are Kristen Roeder, Babe Lieberman, and Ali Larkin. I also interviewed the two family programs employees who develop the vast majority of the lab and hire and train the facilitators. Their names are Liz Margulies (Assistant Director, Family Programs) and Cari Frisch (Assistant Educator, Family Programs) (see Appendix B for all consent/assent forms). By interviewing these three groups of people (visitors, facilitators, lab developers), I was able to learn about the intentions and goals of employees both behind the scenes and ones that are in the lab every day, as well as the thoughts of the families.

Observations

For the observational aspect of my study, I sat in the MoMA lab and recorded the actions of the groups in a notebook. There exists a spectrum regarding the type of

observation taking place, with the two poles being structured and unstructured observation, and the large majority of the research falling somewhere between the two (Thomas, 2009). Structured observation breaks down the world into identifiable, measurable elements and the researcher systematically records these (such as the frequency or duration of particular behaviors). Unstructured observation is used when a researcher immerses herself in the environment, often as a participant of some kind, and involves recording important components and aspects of the situation as it unfolds. Like many case study researchers, my format contained both. I used a structured form of observation when I notated each and every time participants changed stations or when I recorded the length of time they spent at each station. I did this so I could determine which of the stations were most popular with visitors. I was made use of unstructured observation when I established general notes on social roles I saw the participants performing. Because I wanted to learn how visitors interacted with other members of their group within the space, but was not interested in one specific element of their interactions, unstructured observation was a natural choice.

I noted when group members interacted with each other, with other people within the lab, if they seemed to be truly engaged or just wandering around, and anything else they did that seemed important or noteworthy. This was in addition to the more structured observations. While observing interactions in the lab, I tried to make use of thick description as often as possible. Thick description is putting each element in context to allow for a more accurate description of human behavior (Thomas, 2009). For example, I would not simply write “Mother talks to daughter.” Instead, I would detail whether the mother was reprimanding her daughter, or if the mother was engaging her daughter in conversation about the activity they were working on together. In thick description, the

researcher must make some interpretation of the observations immediately (Thomas, 2009).

With a pen and notepad, I began taking notes on groups as soon as they entered the lab. This included information on how many people were in the group, which stations they interacted with and for how long, as well as their interactions with each other or other people in the lab. Observation for each group lasted the entire time they were in the lab, which ranged from fifteen minutes to eighty-three minutes. At the end of each group's observational period in the lab, I added a summary of the various stations and activities utilized by the family. Obviously, merely notating that a certain number of visitors engaged with a particular station does not tell the complete picture, so I also looked at how long each visitor engaged with various components of the station, how they engaged with them, and if there was any sort of interaction or dialogue with other members of the group. I wrote down observations for people that were not in one of my target groups, if they interacted with one of the people in my study.

Interviews

An interview is a discussion with someone, usually in-person or on the telephone, where one person tries to secure information about facts, opinions, or attitudes from another person (Thomas, 2009). Interviews can be categorized into three different groups: structured, semi-structured, or unstructured**.** A structured interview uses the same questions for each participant, while an unstructured interview has no pre-set format, often letting the interviewee guide the conversation. I utilized a semi-structured format, which lies somewhere between these two extremes. I had a list of particular questions and issues (see Appendix C) I wanted the interviewee to address, which gave some standardization across all groups and museum employees (Blessing & Chakrabarti,

2009). However, I still had the freedom to ask for follow-up information or additional questions, as I thought appropriate (Thomas, 2009). For example, I asked all families what they would do to improve the lab and frequently asked additional questions based on their particular response, or I would refer to something I witnessed the family do during my observations. Thomas (2009) states that information gleaned from interviews may be received as straightforward facts, or may be interpreted based on additional behaviors (mannerisms, action, etc.). There were multiple examples of an interviewee saying something that was counter to what I witnessed (described in Chapter 5). The semi-structured interview enables more flexibility than the structured format, as is appropriate for the exploratory nature of my study (Blessing & Chakrabarti, 2009).

Interview questions are divided into two types: open-ended questions, which give the interviewee freedom in how she responds ("What could make this space better?"), and closed questions, which require a particular type of response ("What activities have you used in the lab today?") (Thomas, 2009). I utilized both types of questions.

I established and employed three sets of interview questions. There was a set of questions for the first interview with the group that took place fifteen minutes after they entered the lab. The second set of interview questions was to be asked when the group left the lab. I had a third set of interview questions for museum employees (see Appendix C for all interview questions). This is described more in-depth in the following section labeled Original Protocol and Modifications.

Prior to all interviews adult participants in the groups signed consent forms (Appendix B) for themselves stating that they agreed to participate in my study. If the adult was a legal guardian of a child in the family, she signed a consent form giving me permission to interview both her and her child. If there was an adult in the group that was not the legal guardian of the child, she signed a consent form allowing me to talk solely

to her. This occurred when I interviewed nannies who brought children to the lab. Children all gave verbal assent after being read the assent form and, if they were older than seven, then signed it. Children were only interviewed if their legal guardian was present. Museum employees also signed a consent form prior to the interview (see Appendix B for all consent and assent forms). All interviews with families in the lab lasted less than ten minutes. Interviews with museum staff ranged from ten to thirty-five minutes. I taped all interviews using a digital recorder and later transcribed them. I conducted all interviews in person at the museum, except for one museum employee who I interviewed on the telephone.

Original Protocol and Modifications

The education staff informed me that early December would be a slow time for the lab, which I saw as a good thing because it would be easier to observe the visitors. Because I was a facilitator for the lab over the summer, I knew that if the small space became filled, it would be very difficult to track the people within the lab. It would also be difficult to interview people if it was noisy.

My original intention was to observe a family for fifteen minutes after they entered the space, and then interview them. I chose to wait fifteen minutes after the family was in the lab because I wanted them to have already explored different parts of the lab before I began to ask them questions about the space (I modified this for some families, which I explain below). From my experience over the summer, I knew that families usually spent over a half hour in the space, and I was not overly concerned with families entering and leaving the space before I got the chance to interview them. While I interviewed them, the family would continue to play in the lab. After the interview, they

would continue interacting in the space while I observed from a distance. We would have a final interview when the group was ready to leave the lab.

Unfortunately, I spent multiple hours each day in the lab without a single visitor utilizing the space. I never saw the lab this empty during the previous summer, nor had any of the educators ever experienced this low attendance. The first group I began observing chose not to participate in the interview and the second group I observed left at the fifteen-minute mark before I was able to interview them. I kept these groups in the study, but only have observational data and no interviews for them, as is detailed in the next chapter.

I used the protocol previously described for the next two groups, and interviewed them after they had been in the lab for fifteen minutes and then again when they left. But after that, I modified my approach so I would be able to gather more interviews. For the remaining five groups in my study, I interviewed each of them once, hoping to increase the likelihood that people would be willing to participate, and often asked them within a few minutes of entering the lab if they would consent to be interviewed. I said they could be interviewed right then or when they were done playing in the lab. I used questions from both sets of group interview questions (the set from the interview intended for fifteen minutes after the group entered the space and the set of questions intended for when the group left the space) (Appendix C). I interviewed a few groups after they had been in the space for fifteen minutes, but I interviewed most as they were leaving the lab. Although being consistent with the number and timing of interviews with each group would have been ideal, I still was able to collect a large amount of information on how groups utilized and viewed the lab space. I was interested in seeing if my interview at the fifteen-minute mark subsequently had any affect on the adult's behavior or thoughts about the space, and intended to look for any substantial differences in behavior before

and after the interview undertaken at the fifteen-minute mark. Since I only had one interview for most families, I was unable to pursue this aspect.

DATA ANALYSIS

To analyze my data I used the constant comparative method, which involves going through the data repeatedly and comparing each element of it with all of the other elements (Thomas, 2009). An element can be a phrase, idea, paragraph, among other options. From this, themes emerged that I mapped to show the relationship between the various elements (Thomas, 2009). I applied the constant comparative method to analyzing both my observations and interviews with visitors and museum staff.

I began interpreting the data as soon as I started taking observational notes of my first group (Thomas, 2009). I then transcribed my interviews, hoping that some themes would emerge naturally and give me at least a starting point for a more in-depth analysis (which proved accurate). Transcribing all the interviews was an extremely lengthy process, but also a way for me to become more familiar with my data.

Next, I typed my observational notes. I then compared if what each group described in their interviews matched what I saw and interpreted in my observational notes. I then compared the use of stations and themes across family groups.

To find themes that I did not notice while transcribing my data, I began to highlight certain phrases in my observational notes and interviews that appeared important, and then searched for phrases or ideas that seemed connected in some way. After discovering which themes arose in more than one family or museum employee, I determined which themes seemed meaningful and helped explain and describe the lab experience. I also analyzed which activities were used most often and how long people used the various stations.

CONCLUSION

In order to understand what made the MoMA lab a successful space for interactive, intergenerational learning, I examined the design of the lab, how groups used and thought of it, and what staff aimed for in its development. I needed a structure that enabled me to collect the most information regarding all aspects of the lab, and the case study became the obvious choice of methodology. After the examination of all the collected data, trends became apparent about what makes the lab an engaging space. The next two chapters present the data and emergent themes related to my study of the intergenerational lab at the Museum of Modern Art.

Chapter 4: *MoMA Art Lab: People*

MoMA Art Lab: People is an interactive space at the Museum of Modern Art intended for families, but it is not limited to that audience. Most visitors come as intergenerational groups, but adults visit on their own as well. This chapter describes the lab in-depth, with a focus on the following: its development, purpose, staffing, layout, and each station. I gathered all of the information in this section by visiting the lab or interviewing staff in December 2012.

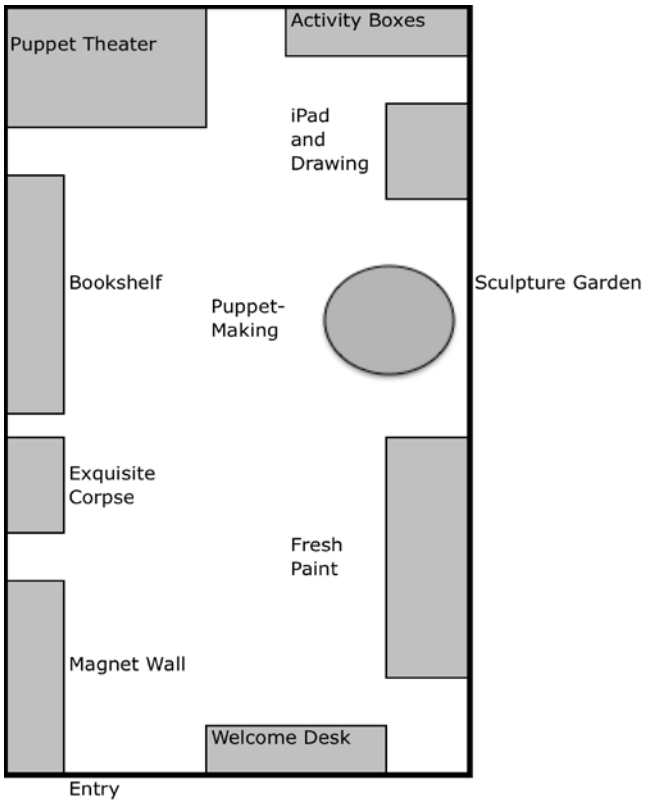

Illustration 1: Layout of the of *MoMA Art Lab: People*[2]

[2] Not to scale

Illustration 2: *MoMA Art Lab: People*

DEVELOPMENT OF THE LAB

Before diving into the specific stations of the lab, it is best to start with a description of how the lab originally came into being. A curator from MoMA approached the education department staff requesting that they develop a place where visitors could play with color for an exhibition entitled *Color Chart: Reinventing Color 1950 to Today*, which ran from March–May 2008. Liz Margulies, the Assistant Director, Family Programs, agreed to undertake the project. There was not space available in the exhibition galleries, which was what the curator originally wanted. Liz therefore repurposed an under-utilized area elsewhere in the museum for the lab. This original interactive lab (titled *Color Lab*) was intended for the general museum audience and not specifically for families. However, since families were Liz's specialization, activities for them were included. Not only did families love the space, evaluation by the education department revealed that the addition of the lab actually changed visitors' views regarding the museum. Families now saw MoMA as a more family-friendly institution.

Because this lab was created for *Color Chart*, it only remained open for three months, the length of the exhibition.

Due to its success, the museum staff decided to develop another interactive space the following year, 2009, for a little bit longer period of time (four months). For this iteration of the space, Liz enlisted the help of Cari, the Assistant Educator, Family Programs. There was not an exhibition that lent itself particularly well to a family audience at that time, so Liz and Cari decided to work with another element of art, and *Line Lab* was born. *Color Lab* was unstaffed, causing Liz to constantly restock supplies and clean up the space, in addition to her regular duties. To remedy this situation, Liz and Cari gave a few graduate students a small stipend to help with maintaining *Line Lab*. Liz and Cari also wanted the students to help visitors make connections between what they were doing with the activities and what they saw in the galleries, so these students received the title "facilitator."

The 2010 lab had a focus on another element of art and was named *Shape Lab*. The lab was so successful that it stayed open even longer–for about six months. Because of the lab's popularity, Liz and Cari decided to cancel all family programs for the summer in order to focus on *Shape Lab*. Providing summer programming or extending the duration of the lab by a few months would cost about the same amount of money. However, significantly more families would be able to use the lab than attend scheduled programs, so they chose the former. At this point, the lab became a permanent part of the planning and budget.

Material Lab was the next interactive space and opened the following year, 2011. Liz and Cari worked in collaboration with a colleague in Access and Community Programs, Kirsten Shroeder, to develop the space this time. The three focused on accessibility, multi-modal learning, and incorporating more tactile elements. The concept

of focusing on materials lent itself well to touch, which is why *Material Lab* became the next iteration of the space. Because the lab had gained institutional recognition, it became a year-round fixture and stayed open for a year and a half. This is the lab I worked in as a part of my duties as an intern during the summer of 2012. The space closed for about five weeks in the fall to tear down the old lab and put in the new lab, *MoMA Art Lab: People*, the current version.

The lab is mainly developed and managed by Liz and Cari, with a staff of approximately five facilitators (the differences in roles between Cari, Liz, and the facilitators is described in the Staffing section). Because of the demands of the lab, there is now always a Family Program intern (like myself) whose main duty is to assist with the lab's upkeep. However, it is not entirely the Family Programs department that shapes the space, and Liz and Cari work with the design department, carpenters, Access and Community Programs, and the curators to make sure their aesthetic, chosen content, and point of view align with the vision of the staff from other departments. The lab space links departments across the museum.

PURPOSE

Although the initial lab came into being because a curator wanted people to be able to play with color, the purpose has become much more far-reaching. Because the lab is now jointly developed by Liz and Cari, it is important to understand what they hope to achieve with the labs. Liz wants people to have "another dimension" added to their trip to MoMA, which I interpreted to mean a tactile, interactive experience in a place that was kid-friendly. By engaging with the activities, the visitors are adding an experience to their visit that would not exist without the lab. She hopes that they have not only a better understanding of modern and contemporary art, but also a better awareness of their own

personal connection to art. To further this, Liz only chooses themes that people can easily relate to in some way. For example, everyone can say something about color, whether the visitor is five or ninety-five years old, and the themes are supposed to be a familiar entry point for all. Liz wants visitors to make connections to MoMA's collection, as well. Additionally, she desires that people feel connected to MoMA as an institution; they should feel welcome. However, Liz also hopes that the experience does not end at the lab and people continue to talk about the ideas in the galleries.

Cari believes in many of the same principles as Liz. However, she thinks the most important aspect of the lab is for the visitors to have a creative experience. This could take many forms, which may include thinking about art or art-making in a new way. She also placed great importance on visitors making connections to MoMA's collection, particularly as it relates to the theme of the lab (looking at portraits in the galleries after visiting *MoMA Art Lab: People*, for example).

Although the space is intended for intergenerational family audiences, Liz and Cari decided that they did not need to force parent interaction. They learned that families valued the space as a break from the museum. In the galleries parents often felt stressed because they were so concerned with making sure their children did not touch the art. Parents often became anxious in particularly crowded areas. In the lab, however, parents do not need to worry about letting their children touch or get lost in the enclosed space. The space is designed to facilitate interaction with children and adults, but it is perfectly acceptable for parents to sit back and read one of the art books while their children play with the activities. The labs are intended to be a respite for children and adults from some of the anxiety associated with the galleries. Families have expressed that they come to the museum to spend quality time together, but this does not necessitate that they are actively doing something together throughout the entire duration of their visit. That being said, all

the families I saw interacting in the lab were working together (described more later), but this was not required.

As previously stated, the first lab was intended for people of all ages and had a bit of an emphasis on families only because the person who developed the lab was in the Family Programs department. It very quickly became a space that was developed specifically with families in mind. However, the space is still designed to not look too "kid-specific," in Liz's words. It follows the style of the rest of the museum, which generally has a minimalist aesthetic. This assists in presenting the lab as part of the museum, and not as a separate entity for children. The facilitators are also specifically told to make all people, not just younger visitors, feel welcome.

STAFFING

Except for extenuating circumstances, the lab has two people in it who help manage the space at all times. One is a volunteer whose main job is to greet visitors at the welcome desk, but who also assists in many other ways as well. Volunteers, some of whom have been with the lab for many years, all have weekly shifts and are a valued part of the space. Volunteers can be adults of any age.

The other person in the lab is the facilitator, a paid staff member. Although this position was originally filled with graduate students beginning with the second iteration of the lab, facilitators are now museum education professionals. All the facilitators I interviewed worked part-time in education departments at multiple New York City museums. The facilitator manages the volunteer and has some administrative duties, but the most important aspect of their job is to facilitate learning experiences in the lab. Facilitators use an inquiry style of teaching and ask visitors questions ("How did you make that?") Facilitators give every person that enters the lab an introduction to the

space and endeavors to make them feel welcome. This also gives the facilitator a chance to explain any activities the visitor is interested in, go over rules, but possibly the most important mission is establishing themselves (and the museum) as friendly. A large part of the facilitator's day is intended to be interacting with visitors.

Although Liz and Cari design most of the activities in the lab, facilitators are encouraged to make suggestions (or modifications) for activities, as well. Lab staff hold monthly meetings and discuss successes and failures of the lab and recommendations for facilitation, in addition to anything else that needs to be addressed.

LOCATION OF THE LAB WITHIN THE MUSEUM

The Museum of Modern Art is mainly composed of two adjacent buildings. There are two ways visitors can get from one building to the other: a small hallway linking the two, or a walk through the outdoor sculpture garden. The first building is the entrance to the museum and is where the galleries are located. The vast majority of the other building is office space for employees, but there are also classrooms, an auditorium, and the lab. To get to the lab, visitors must enter through the first building, and find their way to the lab in the second. Visitors, therefore, usually need to know about the lab in advance (from friends, the website, or museum staff/volunteers) since it is located off the beaten path.

As I described earlier, the original concept for the lab was to have an activity within an exhibition, but there was not room. I asked Liz her opinion about having the lab integrated within the galleries or separated from them, and she responded that she has gone back and forth on the issue. She would like for it to be closer to the galleries (it is currently not even in the same building as the art, after all), but maybe not actually within them. The families appreciate that they can let their guard down because the lab is

separate from the fragile art. Additionally, because families have to intentionally seek out the labs, she thinks it makes it feel a little bit more special. If there was an available space closer to (or within) the galleries, it would have to be a significantly better space because the current location has quite a few advantages to other areas in the museum (lots of natural light and nearby restrooms, for example). Liz did say that if she was able to find a space closer to the art, the lab probably would be more of a space for adult visitors. Even if the activities stayed the same, more adults would naturally wander through the space.

On a related note, some of the labs have had a work of art from the collection hanging on the walls, but not all of them. *Material Lab* did so, as it displayed artwork above the bookshelves. It was very visible (visitors could see it from anywhere within the lab), but because of its location and placement, most children physically were not able to reach it, so there was never a problem with touching. *MoMA Art Lab: People* does not have anything from the collection displayed within it.

The following two sections describe the physical layout of all components of the lab, as well as descriptions of the stations.

WELCOME AREA

At the front of the lab there is a welcome desk, which is usually manned by the volunteer. It contains various pamphlets, including a worksheet that focuses on the theme of the lab, which visitors can take into the galleries with them. This lets visitors link their experience in the lab with works of art in the galleries. To the right of the desk is an area for people to hang their coats, which signals that they are welcome to stay for an extended period of time.

STATIONS

There were nine stations as part of *MoMA Art Lab: People* when I researched the lab in December 2012. This section describes each station in-depth. I also title each station, although they are not officially labeled in the lab. I do this so that I can easily refer to particular stations without giving a lengthy description each time I refer to it throughout my thesis. Some of the stations are directly across from each other within the lab, but they are listed more-or-less in the order from the front of the lab to the back. I begin with the Magnet Wall Station, which is nearest the entrance, and end with the Activity Box Station, which is against the back wall. For a map of the lab layout, see Illustration 1 at the beginning of this chapter. Almost all stations have instructions or a prompt on a sign nearby, but I do not mention this within each description unless it is particularly noteworthy.

Magnet Wall Station

Illustration 3: Magnet Wall Station

The first station that visitors encounter in the lab is the Magnet Wall, which actually consists of two activities. In one activity (seen on the right in Illustration 3), visitors rearrange shapes to make a face on a black gridded square. In the other activity (the white rectangle on the left in Illustration 3), visitors create a face with cut-out magnetic letters. The extra shapes and letters are placed in the two rectangles in the center. Illustration 4 (below) depicts a face made by one of the visitors for this activity. Outlines of boxes are painted on the wall using magnetic paint and letters are cut from magnets, so it is easy to rearrange the letters and shapes.

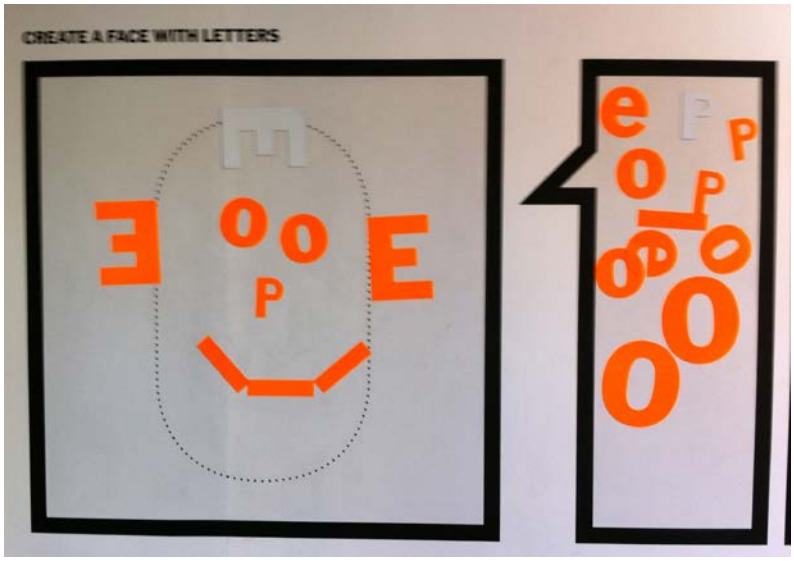

Illustration 4: Creating a Face with Letters on the Magnet Wall

Fresh Paint Station

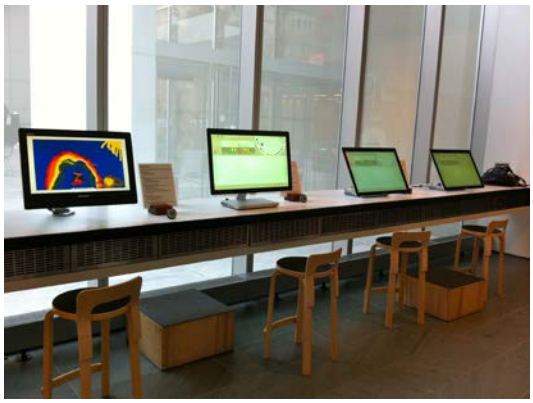

Illustration 5: Fresh Paint Station

Fresh Paint is a Microsoft program where visitors directly touch the screen of a tablet computer and move their fingers across it to "draw." Visitors may choose among different forms of digital media (oil paint, watercolors, oil pastels, etc.), and the media blend similarly to how they would in real life. There are four tablet computers that each have the Fresh Paint program installed on them. Fresh Paint originally solved a problem in the lab. It made sense for visitors to play with paint and other media during *Material Lab*, but there were no sinks in the space. This program enabled visitors to digitally work with different types of art materials that could not otherwise be in the lab. Fresh Paint does not relate as well with the theme of people, but it was left in the lab because of its popularity.

Visitors may play however they wish with Fresh Paint, but there is a laminated sheet providing instructions for taking a picture of oneself or a partner with the computer and then "painting" over the portrait (linking to the concept of people), and emailing completed works of art home. There is also an option to scroll through a gallery of works

made by prior visitors to the Fresh Paint Station. Because of the popularity of this station, a waiting list is made during busy times. The waitlist was never utilized during my December site visit, but was used multiple times a week during busier times of year (such as my time as an intern over the summer), with the list sometimes having as many as 20 names on it.

Exquisite Corpse Station

Illustration 6: Exquisite Corpse Station

The Exquisite Corpse Station refers to a game of the same name often played by the Surrealists. In this game each person in a group would add a piece to an artwork begun by others, making a communal work of art. Often, each artist would be unable to see what the others had drawn (the other parts of the artwork would be folded or covered in some way). If the artist was to draw something in the top part of the paper, they might assume they needed to draw a head, but would have no idea if it should be the head of a person, a duck, or something entirely different.

In the MoMA lab version of Exquisite Corpse, people are encouraged to draw behind one of the three doors labeled “head,” “body,” or “legs.” After they draw their segment, they close the door and cover up their drawing, and then someone else opens a different door and adds to the drawing. After all three segments are drawn, the visitors open the doors, revealing the completed drawing. In actuality, no one that I observed used the station in this way, but many people did draw all three segments on their own.

Bookshelf Station

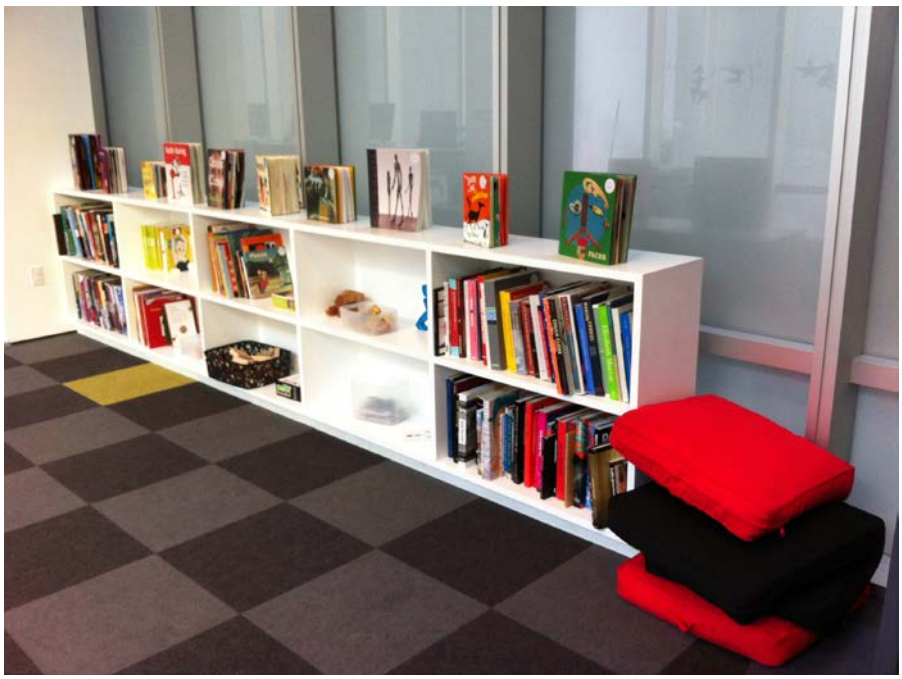

Illustration 7: Bookshelf Station

The Bookshelf Station contains books on MoMA’s collection that focus on particular artists or movements in art, as well as a selection of children’s books that relate to art in someway. Additionally, the shelves contain some toys intended for younger visitors, such as wooden eggs with painted faces, or plastic people.

Puppet-Making Station

Illustration 8: Puppet-Making Station

This station provides supplies and tools for visitors to make their own paper shadow puppets. A string is stretched across the window nearby displaying some puppets made by staff and visitors (five sample puppets are scene in the window of Illustration 8). There is a sign that directs families to make their own puppet and reminds them to clean up the station when they are done. The sign also provides some questions for people to think about as they make their puppet such as, “What will your figure be doing?” and “How will you position the figure’s body to show that action?” Multiple stations have questions like these, which are meant to provoke thought and discussion.

Puppet Theater Station

Illustration 9: Puppet Theater Station

After making a puppet, families can then go to the Puppet Theater and put on a show. They may also use puppets made by the education staff. There are cushions in front of and behind the screen for the comfort of those watching and those putting on the play. The Puppet-Making and Puppet Theater Stations are located close together in the lab, thereby promoting the relationship between them (see Illustration 10 below). The Puppet-Making Station is the circular table to the left, and the screen of the Puppet Theater Station is lit by a lamp to the right.

Illustration 10: View of the Puppet-Making and Puppet Theater Stations

Drawing Station

Illustration 11: iPad and Drawing Stations

The drawing station is at the same table as the iPad (see Illustration 11, above). There is a prompt directing each person to draw a portrait of herself using the mirror provided, or to arrange and sketch the wooden model (among other options). Paper and pencils are also provided.

iPad Station

In June 2012, MoMA released an iPad program titled *MoMA Art Lab*, which was made commercially available to the public and was incorporated as a station in *MoMA Art Lab: People*. The program enabled visitors to learn about certain artists and make sound compositions, shape poems, and group drawings, among many other choices. There is only one iPad available for visitors in the lab. This station is interactive, but does not fit the lab theme as well as the others. The program focuses on many aspects of art, and although there are reproductions of art with people in it, the theme is not continued throughout the program. The museum staff believes that visitors of all ages like and enjoy the program, but admit that it is also included in the lab now as a marketing maneuver so

that visitors will buy the program. The iPad is turned on but the screen is off (a power-saving feature). The iPad is visible on the left side of the table in Illustration 11 (above).

Activity Box Station

Illustration 12: Activity Box Station

There is an activity within each box in this shelving unit that is related to the theme of people (pose, costume, etc.). Each box contains a manipulative of some sort and a laminated strip of paper containing an image from MoMA's collection that relates to the theme of the box. This paper also contains information on the work of art and the theme as well as a few prompts or questions intended to initiate visitor thinking.

One box labeled "portrait" contains blocks with eyes, a mouth, and other facial features that can be arranged to make various faces, which is clearly intended for a younger visitor. Other boxes are meant for older visitors and are more abstract. For example, another portrait box contained scraps of various clothes that are supposed to be arranged into a self-portrait, leaving it up to the visitor to assign meaning to those strips. There are also kinesthetic activities in the boxes that enable collaboration. One of the

boxes labeled “pose” has a stack of cards depicting artwork. A visitor is supposed to choose one, look at it, and put it back in the stack of cards. She then poses like the figure on the card and a friend or family member flips through the cards and tries to determine which artwork inspired the pose.

Now that I have provided a history of the development of the lab as well as a thorough description of each station, it is appropriate to present the data regarding how intergenerational groups used the stations, which I collected through observations and interviews while in *MoMA Art Lab: People* during December 2012.

Chapter 5: Data Analysis

In December 2012 I observed nine groups at the Museum of Modern Art as they used *MoMA Art Lab: People*, and I interviewed seven of those nine groups. I also interviewed five MoMA education staff members: the two people responsible for the space Liz Margulies (Assistant Director, Family Programs) and Cari Frisch (Assistant Educator, Family Programs) and three facilitators (Kristen Roeder, Babe Liberman, and Ali Larkin). By examining these observations and interviews, certain trends emerged regarding station use, interactions, and engagement. But before diving into specifics, it is best to give a general description of what I saw and heard in the lab.

THE TYPICAL LAB EXPERIENCE

Although each group had an individualized experience in the lab resulting from the stations they selected, how long they spent in the lab, and how the different group members interacted with each other, a typical lab experience was discernable. Most groups were composed of two people–a parent and a child. To begin their time in the lab, each group waited near the desk at the front of the lab to be greeted by the facilitator. She offered them an introduction to the space that lasted from one to five minutes and briefly gave instructions for some of the activities. From that point forward the groups generally acted independently from the facilitator as they chose the stations that interested them.

The child interacted with a station while the adult stood nearby, conversing with the child every once in a while and occasionally the adult interacted with the station as well. After a few moments the child moved to a new station with the adult following. The child often floated between stations for a minute or so before actually choosing one. Additionally, it was common to revisit the same station multiple times within a single visit to the lab. Groups often returned to an activity after interacting with a different

station for a little while. Although adults spoke with their children at almost all stations, there were frequent minutes of silence between the two. The adult could have been interacting with a station on her own or simply watching her child engage with an activity. There were also short periods where group members were completely unengaged (staring into space or playing on a cell phone, for example). At some point, either the adult or child decided that it was time to go and the group would leave the lab.

Throughout the duration of the visit, the child was almost always the leader of the group and the adult followed him around. The adult could do an activity independently, but for the most part the adult chose to remain with the child. Adults directly interacted with stations for a short duration and more often just spoke with their child about what he was doing or gave suggestions for how to play with the activity.

THE PARTICIPANTS

Although most groups in the study conformed to the generalized experience described above, each had their own nuances and all departed from the norm in various ways. To understand who was actually using the lab and to get an idea of how group members interacted with each other, I provide a short description of each group. In these descriptions I identify each person I interviewed and the number of times I interviewed him or her. Table 1 below displays the size and composition of each group and the ages of the children.

	Number of Group Members	Number of Adults	Number of Children	Age of Children
Group 1	4	2	2	4* and 3*
Group 2	2	1	1	5*
Group 3	3	2	1	8
Group 4	2	1	1	3
Group 5	2	1	1	2
Group 6	4	2	2	6 and 6
Group 7	2	1	1	5
Group 8	2	1	1	2
Group 9	2	1	1	1
Total	23	12	11	

*Denotes an approximate age. No interview was performed, therefore no information on age was provided by the group.

Table 1: Summary of Participants

Group 1

Group 1 was composed of a mother, her four-year-old son, a three-year-old daughter, and another woman approximately the same age as the mother. This group chose not to participate in any interviews, so the ages of both children are approximate. I do not know if the second woman was related to the family or was a friend of the mother, but the two arrived together and spoke to each other most of the time. The mother also trusted this woman to watch her son while she left with the daughter for a period of time.

The children barely spoke even if someone attempted to talk to them. When I originally asked the group if I could interview them, I told the mother that I needed to have the children themselves tell me directly that they were willing to participate and she said, “Good luck.” I did not receive any sort of response when I spoke with either child. Eventually the mother decided not to participate in an interview either, so the children’s lack of response did not matter since I did not have permission to talk with them from their guardian.

When the daughter was in the lab, she was usually in the mother's lap. About halfway through their visit the mother and daughter left, leaving the boy with the other woman. She repeatedly tried to interact with him, but he usually tried to get away from her and moved to a different station when she began talking to him. Both children were nearly always engaged with an activity, although the girl would occasionally wander around the lab. The boy would work independently, but sit with the group when his mother was present. However, he would not sit with the other woman after his mother left. This group was in the lab for the longest time of any group (eighty-three minutes).

Group 2

This group was composed of a mother and her five-year-old daughter. I did not interview them because they left after fifteen minutes (which is when the first interview usually occurred). They did not return. The daughter's age is approximate due to the fact that I was unable to speak with them. This group spent the least amount of time in the lab out of all nine groups (fifteen minutes).

The mother was very attentive to her daughter and almost constantly interacted with her. The mother would offer suggestions to her child each time they went to a new activity and let the daughter make the decision about what to do. However, the mother would take over the interaction at the station after that. For example, when the daughter was drawing at the Fresh Paint Station, the mother asked, "Do you want me to erase that?" The daughter replied that she did not, but her mother spent time figuring out how to erase it anyway. Instances similar to this happened repeatedly at each station and the child would get fussier as the mother's involvement grew. The girl's frustration appeared to be directed at the mother's increased "guidance" and not the activity itself. Eventually the pair would go to a new station and the pattern repeated.

Every few minutes the mother would ask if the daughter had to use the bathroom, who always responded in the negative. After fifteen minutes the mother took her daughter anyway and that was the end of their visit. The daughter was continuously playing with an activity and the mother was nearly always interacting with her daughter the entire time they were in the lab. This is unlike most other groups, who did have moments when the adult and child were not playing together, as previously described in the typical experience. This unusual interaction between the mother and daughter is discussed at length later in this chapter as well as in the final chapter.

Group 3

Group 3 entered the lab consisting of an eight-year-old girl and her grandmother. Approximately halfway through their visit the grandmother left the lab and the girl's mother entered. I interviewed the mother and daughter together once in the middle of their visit and a second time when they were leaving.

The mother and grandmother both frequently interacted with the girl. However, the little girl was very friendly and interacted with the facilitator much more than any other individual (child or adult) in my observations. In most cases, the facilitator only interacted with the groups during the initial introduction and would occasionally check in with them after that. However, the girl from Group 3 interacted with the facilitator, Kristen, at length multiple times. At first Kristen initiated all the conversations with the girl, but she eventually sought Kristen out as well. Sometimes they would merely be talking about an activity, but at other times the girl and Kristen would work together at a station. Most of their interactions revolved around the drawing station, with the girl saying that she liked Kristen's artwork, or Kristen asking the girl to describe her artwork. This group had a different type of experience in the lab than most of the other groups

because of the facilitator's frequent involvement. Conversations between parents and children usually involved the parents' praise ("That looks nice!") and not probing questions that would make the child think more about the activity or articulate what she had made, which is what Kristen did. While the daughter was speaking with Kristen, her mother and grandmother often continued to interact with a station on their own or became disengaged. For the most part, they did not interact with the young girl while Kristen was speaking with her.

Group 4

Group 4 was made up of a mother with her two-year-old daughter. They mainly spoke in a language other than English, so I did not understand what they were saying, but they were almost constantly talking to each other. The mother spoke English, but the daughter had limited use of the language. I interviewed this group once in the middle of their visit and again at the end, only speaking to the mother due to the language barrier.

This group often worked together and both the mother and daughter interacted with the station. The daughter encouraged her mother's participation and demanded that they use the Fresh Paint program together, even though the computer screen could only register one person's finger at a time. Several times the mother went to a station (such as Fresh Paint) on her own for short periods before returning to her daughter.

Group 5

A mother and her two-year-old daughter comprised Group 5. I interviewed the mother in the middle of their visit and once again at the end. I did not interview the daughter. This was not only due to the fact that she was so young, but also because once the mother sat with me to talk, the girl ran away to play with activities.

The mother and daughter were usually discussing what the girl was doing, but the mother was not generally touching and interacting with the station itself. The exception to this was with the Fresh Paint and Puppet-Making Stations, where the mother and daughter worked together for quite a while. The girl wandered out of the lab during the first interview.

Group 6

Group 6 was unique in that it was made up of a set of mothers who appeared to be the same age and each of whom brought her six-year-old daughter (for a total of four people in this group). They were clearly two separate biological families, but because they entered the lab as one unit and seemed very comfortable with each other, I counted them as a single group for my research. The mothers only wanted me to interview their daughters, which I did one time in the middle of their visit while they played with the Exquisite Corpse Station. This turned out to be the interview that resulted in the least data. Adults in the study were able to better articulate their thoughts, spoke with me longer, and provided me with more information than the children. Generally when I asked children questions, the adults would encourage them to speak to me, but I did not have that in this situation.

For two-thirds of their visit (seventeen minutes) the mothers engaged with each other and the puppet-making station and not with the children. The entire time they were in the lab, the women directly interacted with the stations. By “directly interacted” I mean the women physically manipulated the stations themselves, rather than just talking with their daughters as the young girls used a station. In all of my observations of the lab, this was the only time that the adults acted independently of their children for more than a

few minutes. It was also the only example of an adult continuously touching and engaging with the activities for the entirety of her visit.

The majority of the time the mothers were making a puppet and talking to each other. During the last third of their visit the mothers and daughters spent the time together playing at the Puppet Theater. These were the only adults in my research who did not focus heavily on their children. Both the mothers and the daughters were talking and engaging with their respective peer the entire time. This was a different type of experience from most of the other groups whose interactions were almost entirely intergenerational and consisted of an adult and child using the stations together.

Group 7

Group 7 was composed of six children and three adults. A group that big was highly unusual and more than double the size of any other group I saw during my time in the lab. The group spread out once they got in the lab and interacted with many stations simultaneously. They split into smaller groups, each of whom played in different areas of the lab. These divisions were not static; group members wandered between the smaller subgroups regularly. Because there were so many of them and they were not within close proximity to each other, I decided to focus on a father and his five-year-old daughter. I chose these two out of the group because nine people were impossible to observe simultaneously and these two appeared very comfortable with each other. Almost immediately I discerned they were father and daughter. I chose to pick a child and parent because I needed the legal guardian to give consent in order to interview the child. I interviewed both the father and daughter together one time fifteen minutes after they entered the lab.

The daughter was quite shy and did not speak to me very much, but she spoke freely with her father and also with two other girls who were close to her age and were part of the larger group. The father and daughter engaged with the same station a few times, but the daughter also played on her own and with other girls in the group. The father spent some of the time with a boy (I eventually learned he was the man's son) or talking with some of the other parents in the group. When the group decided to leave the lab, the daughter was extremely vocal in her desire to remain in the space and play with the activities.

Group 8

Group 8 was composed of a nanny with a two-year-old girl. I interviewed the nanny once toward the end of their time in the lab. Throughout the visit she was entirely focused on the child. This group interacted heavily with Group 9 (also a child with a nanny), who I describe next. The two groups did not know each other, but arrived within a five-minute span of time and began interacting together almost immediately. When the nannies from these two groups spoke, it was always about their children, a topic associated with their jobs, or one of the activities. Because the child in Group 8 was so young, all of the chosen activities were very simple (such as playing with blocks from the bookshelf). Just like the child in Group 5, the girl walked out of the lab for a period of time. Her nanny followed her and eventually the girl chose to return to the lab.

Group 9

As stated above, this group was a nanny and boy of twenty-two months. I interviewed the nanny once at the end of their visit. She had worked with the boy's family for a few years and cared for his two older siblings before he was even born. Although this was the boy's first time in *MoMA Art Lab: People*, the nanny brought the

older children to previous iterations of the space. She had been waiting until, in her estimation, the boy was old enough to be in the lab. She was also extremely attentive to the boy, but spoke with the other nanny and interacted with the girl from Group 8 as well. All the members of Groups 8 and 9 interacted with each other.

THE MOMA LAB: A GENERAL SUMMARY OF STATION USE

I collected quite a bit of information in my observational journal detailing how the nine intergenerational groups used the lab. Now that I have described the groups, the focus is directed toward their interactions with each other and with the stations in *MoMA Art Lab: People*. I present simple statistics that provide a general framework of how families interacted with the activities and with each other, as well as vignettes to more fully describe what I observed in the lab. I incorporate information from interviews with staff and museum visitors as appropriate.

I defined "visiting a station" as someone interacting with the station for approximately thirty seconds or more. When people initially approached a station, they first had to decide if they wanted to commit to the activity. Many times people would walk up to a station and engage with it for a few seconds to determine if they were interested or not, and then walk away. I did not categorize this short exploration as a "station visit." Generally, if the person stayed for at least thirty seconds, she showed that the station had sufficiently interested her in some way and decided to commit to interacting with it.

I examined each station visit to see who was using it and how the rest of the group became involved. First, I looked to see if anyone in the group interacted with the station at all, regardless of the visitor's age or how many people within the group used it. Then, I looked more closely to see who was playing with the station, of which there were three

possibilities. The first was when a child interacted independently with the station (no adult involvement). The second was when an adult independently interacted with the station (no child involvement). The third was when a child and adult interacted with the station together (intergenerationally). Only one person had to be physically touching the station for me to consider the visit intergenerational, but both the child and adult needed to talk about the activity with each other. Most groups revisited stations and used them in various ways at different points. Therefore, a station could be identified as being used intergenerationally by a group early in the visit, and then used independently by an adult on her own a few minutes later when the child left to play with a different station.

	Total Time in Lab (minutes)	Total Number of Different Stations Visited	Number of Stations Visited Indepen-dently By a Child	Number of Stations Visited Intergener-ationally	Number of Stations Visited Indepen-dently By an Adult
Group 1	83	5	5	5	1
Group 2	15	3	3	3	0
Group 3	53	4	4	4	0
Group 4	56	7	6	5	2
Group 5	38	5	5	4	1
Group 6	23	4	4	2	2
Group 7	29	3	3	2	0
Group 8	42	5	5	5	1
Group 9	33	3	3	3	0
Average	41.3	4.3	4.2	3.7	0.8

Table 2: Visit Length and Visitor Configuration for Each Station Visit

Table 2 (above) displays how long each group spent in the lab, how many stations they visited, and information regarding the configuration of the participants during the station visit. The table shows that groups spent various amounts of time in the lab, from fifteen to eighty-three minutes, with an average total time of 41.3 minutes. Group 1 spent eighty-three minutes in the lab, almost thirty minutes longer than any other group. Six out of nine groups spent at least half an hour in the lab; these visits were not short. Something about the lab caused families to stay in it for extended periods of time regardless of all factors (such as age of children, group size, stations visited, etc.).

Every group visited an average of 4.3 stations in the lab, with a range of three to seven different stations. The groups did not just sit at one station for the duration of their visit. They instead interacted with a variety of activities. Every station that a group visited in the lab was used by the child for at least part of the visit (except for one instance, to be described shortly), indicating that children were making decisions for the group about what to do in the lab. People often moved between stations quickly, and returned to some stations more than once. For example, the boy in Group 1 started at the Fresh Paint Station with his entire group, returned to it about fifty minutes later and then again at the sixty-minute mark of his visit. Although his group joined him at his initial visit to this station, he independently decided to return to it two times, with one of the adults in the group eventually following him. This was a common pattern for most of the groups, with individuals moving between stations and shifting between acting alone and intergenerationally.

In another example, the mother from Group 4 went to the Puppet Theater Station to play, and eventually her daughter came to see the station. The young girl watched for a bit, but then grabbed a puppet and started taking part in the play instead of just watching it. After a minute the mother briefly went to the iPad Station and then to Fresh Paint

while the daughter went to the Drawing Station. They acted independently for about three minutes before the mother rejoined her daughter at the Drawing Station. Later in their visit they returned to both the Puppet Theater and Fresh Paint Station. Both these vignettes for Groups 1 and 4 depict a series of events that demonstrate the ebb and flow of how groups acted both independently and intergenerationally, whether at a single activity or across multiple stations. As shown with Group 4, the stations not only engaged the child, but pulled in the adult as well.

There was only one exception to this, when an adult visited a station that her child never touched. The mother in Group 4 used the iPad station while the daughter did not interact with it. This was not a particularly long interaction (only thirty seconds), but notable because it was literally the one example where an adult chose to work with a station that did not interest the child. I was not able to view the screen, but the mother was repeatedly touching the iPad, making it appear as if she was exploring the *MoMA Art Lab* program set up on the tablet.

Table 2 also shows that adults visited a station on their own an average of .8 times, with the range being from zero to two. Over half the groups (five out of nine) had an adult leave her child at some point because a station interested her enough to engage with it while the child was at a different station. This indicates that the lab activities do not appeal only to children. The two mothers from Group 6 spent quite a while (seventeen minutes) at the puppet-making station without their children as the women chatted with each other and made their own puppets. This interaction is described in-depth later in this chapter.

Getting adults to engage with their children at a station is a desired outcome of the lab developers. Getting adults to pursue a station without their children was a less common, but still frequent, occurrence in the lab. What is it about the stations and

activities that encouraged adults to interact independently with them? Possible reasons and motivations for adults acting independently from their children is discussed later.

	Fresh Paint	Puppet-Making	Puppet Theater	Magnet Wall	Drawing	Exquisite Corpse	Bookshelf	iPad	Activity Boxes
Family 1	13.0	42.0	9.0	5.0	x	10.5	x	x	x
Family 2	6.0	x	x	2.0	x	x	6.0	x	x
Family 3	9.5	29.0	1.0	x	4.0	x	x	x	x
Family 4	16.0	7.0	7.0	x	6.0	x	11.5	0.5	5.0
Family 5	12.0	9.0	x	2.0	x	4.0	2.0	x	x
Family 6	x	17.0	10.0	3.0	x	10.0	x	x	x
Family 7	19.0	10.0	2.0	x	x	x	x	x	x
Family 8	x	x	x	2.0	9.0	7.0	2.0	x	2.0
Family 9	x	x	x	2.0	22.0	6.0	x	x	x
Average	12.6	19.0	5.8	2.7	10.3	7.5	5.4	0.5	3.5

Table 3: Minutes Spent at Each Station[3]

[3] The total time each group spent in the lab cannot be determined by adding together the number of minutes spent at each station. Sometimes groups were in the lab, but not interacting with a station. This means minutes were recorded in Table 2's "Total Time Spent in Lab" column but were not recorded in any station in Table 3. At other times, an adult used Fresh Paint for five minutes while her child concurrently used the Magnet Wall (for example). In situations like this, I recorded five minutes at Fresh Paint and five minutes at the Magnet Wall, even though these five minutes occurred simultaneously. In neither situation does the number of total minutes spent in the lab match up with the number of minutes spent at the stations.

Table 3 (above) breaks down how each group spent their time in the lab and how long they stayed at each station. It also displays information on the average amount of time groups spent at particular stations. Even when looking at the table quickly, it is apparent that some stations were used by most families (Fresh Paint, Puppet-Making, and Magnet Wall) while others were used by only one or two groups (the iPad and Activity Box Stations).

Certain stations had visit lengths that were all very close to the average (most notably, the Magnet Wall). Of the six groups who used the Magnet Wall, five families utilized it for two to three minutes and one used it for five. Group 5 interacted with the Magnet Wall in a way that exemplified the typical experience of all groups at the station. It was the first station the young girl from Group 5 visited (it is the first activity when entering the lab). She spent two minutes rearranging the magnetic letters to make a face, and then left for a different station. The mother spoke with her daughter while the young girl interacted with the station, but she did not touch the magnet wall herself.

Other stations produced large differences in visit lengths. The Drawing Station (where the museum staff supplied paper, pencils, and drawing prompts) was used by four groups, but their visit lengths ranged from as short as four minutes to as long as twenty-two minutes (a difference of over fourfold). The Puppet-Making Station (where visitors were encouraged to make a shadow puppet out of paper, brads, tape, and sticks) had even larger differences in visit length, with a range of seven to forty-two minutes. The girl in Group 4 who spent only seven minutes there visited the station once and mainly explored the materials. She tore paper and taped pieces together, but did not actually attempt to make a puppet (she was only two-years-old). The boy from Group 1 made a puppet for eighteen minutes straight (with a brief two minute stop at the theater to test his puppet and then returned to the Puppet-Making Station to make adjustments). He visited the

station three more times before leaving the lab. The children from Groups 1 and 4 had a completely different type of experience at the Puppet-Making Station. However, those two experiences were more similar to each other compared to the short visit the girl from Group 5 had at the Magnet Wall. They were creating, constructing, and exploring various media, as opposed to merely rearranging a single material.

Clearly, not all types of activities were the same. At the Magnet Wall visitors just rearranged letters and shapes to make a portrait, whereas at the Fresh Paint Station they created a work of art on a blank screen using a variety of media digitally. Visitors were prompted to make a portrait on the screen, but were free to make anything they wanted and only a few visitors actually drew a picture of someone. Both the Magnet Wall and Fresh Paint Stations directed visitors to make portraits, but the activities themselves were very different, as were how people decided to use them. How do differences in type of activity affect how long people engaged with station? How is this related to the fact that some stations had more variability regarding visit length? And finally, how do these various types of activities appeal to people of different ages? A possible answer is that the depth of engagement depended on the content of the station, the age of visitor, and the individual who used the station. Other possible reasons for these differences in station visit length are offered in the following chapter.

Group Type	Fresh Paint	Puppet-Making	Puppet Theater	Magnet Wall	Drawing	Exquisite Corpse	Book-shelf	iPad	Activity Boxes
Number of groups that used the station (all group configurations)	6	6	5	6	4	5	4	1	2
Number of groups that used the station intergeneration-ally	6	6	4	5	4	4	3	0	1
Number of groups with an adult that used the station independently	2	1	1	0	0	1	1	1	0

Table 4: Comparison of Station Use Intergenerationally and by Adults Independently

Table 4 (above) displays information on how often each station was used either (a) by anyone alone or with another, (b) intergenerationally, or (c) by an adult on her own. Because my thesis question revolves around identifying which components of the lab were effective at engaging adults in particular, looking at the latter two interactions (intergenerational and adults acting independently) is immensely important. How were all nine stations able to engage an intergenerational audience (except for one–the iPad–which actually only engaged adults)?

Six of the nine groups had an adult decide to visit and interact with a station on her own (or with another adult) at least once while their children did something else. Were certain types of activities more likely than others to get adults to engage with them? Only one station–Fresh Paint–was used independently by an adult in two different groups. The mothers in Groups 4 and 5 both explored this station without their children. The mother from Group 4 spent significant time and energy trying to learn how to use the extra features of the program (emailing the artwork home, for example), but she created her own art as well. The mother from Group 5 did not make her own work of art separately, although she did make one with her daughter. When she used the station on her own, she was more interested in scrolling through other works of art made by previous visitors and emailing the artwork that she and her daughter made.

The simple statistics and accompanying short narratives presented so far help give a framework to describe how intergenerational groups used the lab. Next, I describe the different kinds of engagement I saw while observing visitors in the lab.

THE STATIONS AND ENGAGEMENT

There are multiple ways to differentiate types of engagement with a station, but I focused on three in particular. I first looked at stations that consistently had groups

engage with them for a long period of time (Table 3) or stations that were most frequently used (Table 4). I refer to this as "overall engagement" because it is not specific regarding audience (adult, child, or intergenerational), but looking at general use across all visitors in the study. A second way to measure engagement was if a station had a large number of groups use it intergenerationally, with both the adult and child working and talking together (Table 4). The third type of engagement that interested me was when adults independently interacted with a station without their children (Table 4). In the following sections, I first discuss how long and how frequently groups used each individual station. Next, I describe intergenerational engagement, focusing on stations that elicited the most interactions involving people of different generations simultaneously. Lastly, I discuss stations that had the most instances of adults using them independently of their children.

Overall Engagement: Length and Frequency of Station Use

Overall engagement refers to how many visitors a station attracted and how long they were engaged. The longest average length of time spent at a single station was the Puppet-Making Station, which had groups stay an average of nineteen minutes. Fresh Paint had the second-longest average length of visit with 12.6 minutes and the Drawing Station had an average of 10.3 minutes. None of the other stations had an average above ten minutes, meaning the Puppet-Making, Fresh Paint, and Drawing stations had groups interact with them for much longer than the remaining six stations. What was different about these three stations that made families interact with them longer? Possible reasons are addressed in the final chapter.

Stations that had high overall engagement demonstrated that certain activities repeatedly captured and held visitors' attention. However, this is only one way among many to indicate engagement with a station. Another way was to determine which

stations the groups used most frequently. No stations were visited by all nine families, but three were used by six families: Fresh Paint, Puppet-Making, and the Magnet Wall. The Puppet Theater and Exquisite Corpse Stations each had five families visit them. The stations to be visited most frequently and repeatedly were the Puppet-Making, Puppet Theater, and Fresh Paint Stations, in contrast to the Magnet Wall, which groups often did not return to after engaging with it once.

I have generally used the number of visits and the length of a visit as a way to measure engagement because it is quantifiable. However, there are different levels and kinds of engagement that could occur regardless of how long groups spent at a station. Although harder to measure, these different types of engagement tell a more complete story about how families were actually using the stations.

I describe two experiences with Group 2, both quite different in depth and type of engagement. When the mother and daughter first got to the Fresh Paint Station, the daughter began to make a work of art by herself. Although the mother was not helping the daughter or touching the screen, she was continuously talking to her child. This included encouragement ("Good job!") and suggestions ("Do you want to make a portrait?"). Both people were interacting with the station, but only the daughter was directly engaging with the activity. During the second part of the their visit at the station, Group 2 had a different experience. The mother was touching the screen and it was done in a way that impeded her daughter's use of the station. As previously mentioned in this chapter, the mother would ask the daughter if she wanted to erase something on the screen. The daughter replied negatively, but the mother tried to erase it any way. The daughter became frustrated because the mother kept touching the screen, and eventually the mother asked if the girl wanted to do something different. The girl did not respond, but the mother picked her up and took her over to the bookshelf. Both of these examples

from Group 2 differ from the type of interaction that Group 3 engaged in at the Fresh Paint Station. The mother and daughter from Group 3 were both continuously touching the screen together and co-creating a work of art.

As the involvement of Groups 2 and 3 with Fresh Paint reveal, there are three main ways that groups could interact intergenerationally at a station. In the first type of interaction, one person engaged directly with the station while the other person asked questions and gave suggestions and praise. In the second type of interaction, the two people both engaged with the station directly in addition to talking with each other about the experience. The third way, both people were touching the screen but the dominant person impeded the desired engagement of the other person.

Now that I have introduced concepts related to length and frequency of station use, as well as differentiating various types of engagement, I describe how groups actually engaged with each station and provide short narratives about their interactions. I also give information regarding how many groups visited each station, the average length of their visit, and a range of how long the groups spent at the station.

Puppet-Making Station

The Puppet-Making Station, which supplied visitors with various materials and directed them to make a shadow puppet for the Puppet Theater Station, had six groups interact with it (Groups 1, 3, 4, 5, 6, and 7) for an average of nineteen minutes. There was a very large range of visit lengths (from nine to forty-two minutes). Group 1 spent the most time at a single station (forty-two minutes) when they visited the Puppet-Making Station during the course of their visit to the lab. This was not one long station visit, but involved, instead, multiple trips to the station. The boy from Group 1 made a puppet and then left the station to go and use his creation at the theater. He then went back to the

table for a little while and made some additions to his puppet. Next, he explored the Exquisite Corpse and Magnet Wall Stations before eventually returning again to the Puppet-Making area. Most of the eighty-three minutes Group 1 spent in the lab were short visits to various stations and multiple visits to the same station. This back-and-forth exploration of the lab with frequent visits to the same station occurred in almost all families.

The pair of mothers from Group 6 engaged with the Puppet-Making Station for a long time, but with some notable differences from the boy in Group 1. The women sat down and began playing with the materials and chatting with each other. After five minutes one of the mothers went up to the puppet theater and quickly held her puppet up to the screen to see how it looked. She then went back to the puppet-making table and continued working on her creation. When her daughter came up to the station fifteen minutes later, the mother told her daughter to go to the theater and "test out" her puppet. The girl did, and eventually all four of the members of that group were at the theater either putting on a play or watching it. One of the mothers told the girls to tell a story with the puppets, and later joined them behind the screen and used another puppet to add to the show. The other mother recorded most of the play on her cell phone.

The boy from Group 1 generally worked in silence and made multiple visits to the station, in contrast to the talkative mothers that stayed for one extended period. However, both groups made a puppet, tested it out at the theater, and then returned to the puppet-making station to make some changes to it. They both also put on a play with their creations. The mothers visited the station for seventeen minutes. While the boy visited the station for forty-two minutes total, his initial visit was eighteen minutes–quite similar to how long the mothers from Group 6 were there. Both quickly tested out their puppet at the theater and then returned to adjust the puppet. The remaining groups who visited this

station (3, 4, 5, and 7) visited the station for between seven and twenty-nine minutes. Some individuals made puppets, while others merely manipulated the materials (for example, taping scraps of paper together or linking paper together with brads, but not actually creating a puppet). All groups except Group 5 later went to the Puppet Theater.

The puppet-making station had both the most group visits as well as the longest average duration. What caused this station to be high-ranking in both of these forms of measuring engagement? Are the reasons it attracted many groups and then retained their attention for a long period of time related in any way? If so, why did the magnet wall have a large number of groups visit it (six), but have the second-shortest average visit length (1.8 minutes)? What was different between the two stations, and what is the significance of this difference? These questions are revisited in the next chapter.

Fresh Paint Station

Groups 1, 2, 3, 4, 5, and 7 all used the Fresh Paint Station and did so for an average of 12.6 minutes. Again, Fresh Paint is a program for tablet computers that enables users to "paint" with their fingers on the screen (as well as utilize some additional features). It was common for a group to make a work of art at the station and for the child to then move on to something new while the parent stayed at the computer to explore more of the program. Group 4 (a mother and daughter) came in and walked directly to the computers at the Fresh Paint Station. The girl was working primarily on her own, but the mother would speak to her occasionally and touched the screen every once in a while. Eventually, the mother took a photograph of herself with the computer and began to manipulate it within the Fresh Paint program, and the girl left and went to the Bookshelf Station. The mother stayed at the screen while her daughter played with a toy from the shelf and then moved to the Drawing Station, where the mother eventually rejoined her

daughter. This was also a good example of how a station could be used independently (both by the child and adult) and intergenerationally within a single visit.

Group 5 also used the Fresh Paint Station intergenerationally at first, but then the child left to play at the Exquisite Corpse Station while the mother stayed to email the work of art that the child just made. She then scrolled through other works of art created by previous visitors on the computer before reuniting with her daughter. The children from Groups 1, 4, and 5 all made a work of art on the screen and then left to play with another station. The adults to those groups left the station as well, but later returned and emailed the work of art.

The Fresh Paint Station had six groups visit it (tied for the largest number of group visitors, along with the Puppet-Making and Magnet Wall Stations) and had the second highest average time spent at it, with 12.6 minutes. As with the Puppet-Making Station, this raises questions regarding a possible link between reasons that these stations received both a large number of group users in addition to a high average visit length. Both of these stations gave the visitors the freedom to make any type of art, but also provided prompts and suggestions (the signage directed people to make a portrait). Most people painted whatever they wanted, but a few did make a portrait or took a picture of themselves with the camera feature and then modified that photograph using the tools the program offered (such as the mother from Group 4). Most people at the Puppet-Making Station made a puppet as instructed, but it was not unusual for people to simply play with the materials (like one of the mothers from Group 6.). Visitors could simply run their fingers across the Fresh Paint screen to make a work of art, or they could do something more complicated (paint a realistic portrait or take a picture of themselves with the camera feature and then carefully modify it). These activities and the responses they generated are further addressed in the concluding chapter.

Magnet Wall Station

The Magnet Wall had the highest number of groups interact with it (six–Groups 1, 2, 5, 6, 8, and 9), the same number of groups who used the Fresh Paint and Puppet-Making Stations. However, the average time spent at the Magnet Wall was only 2.7 minutes, with a narrow range of two-to-five minutes. As previously discussed, Group 5 had a typical experience at this station when the daughter rearranged the magnetic letters and shapes for two minutes while her mother spoke with her (but did not touch them herself). Rearranging the letters and shapes was really the only way to interact with the station. After leaving the station the groups did not return. Possible reasons for the station's high engagement using one indicator (frequency) in contrast to its low engagement when looking at length of interaction are discussed in the final chapter.

Drawing Station

Four groups (3, 4, 8, and 9) used the Drawing Station, and the average visit length was 10.3 minutes. This was only one of three stations to have an average visit length of over ten minutes, with the longest visit at this station being Group 9's twenty-two minute visit. At this station visitors were provided with colored pencils, paper, a mirror (for self-portraits), a wooden drawing figure of the human body, and a few written prompts to give visitors ideas to draw (all revolving around the subject of people). Although groups did use the Drawing Station for an extended period, they never utilized the prompts. Groups 8 and 9 mainly scribbled when they visited the station (the children were one- and two-year-olds). The nannies encouraged their children and asked questions about what they were doing, but the nannies did not draw anything. The child from Group 3 drew an animal and the girl from Group 4 drew a dinosaur. The parents from Groups 3 and 4 spoke with their children while the latter were drawing, but the adults did not interact directly with the station.

Puppet Theater Station

Five groups interacted with the Puppet Theater Station with an average visit length of 5.8 minutes and a range of one to ten minutes. All five groups who used the Puppet Theater Station first encountered the Puppet-Making Station. Only one group (Group 5) visited the Puppet-Making Station but did not follow it with a visit to the theater. Although visitors could make their own puppet to use before visiting the theater, there were multiple pre-made puppets available for them to use.

Activity Box Station

Only two groups (4 and 8) interacted with the Activity Boxes and the average was 3.5 minutes. This station had one of the shortest average visit lengths and was not visited by many families. The station was actually composed of twelve different boxes and each box had an activity (usually an object meant to be touched and manipulated) and reproductions of works of art from the MoMA collection with accompanying information. This station, with its twelve activities, clearly took the most time and thought to develop, had content that appealed to a variety of learning styles and people of different ages. However, each activity was merely placed in a box with a generic label related to its content ("pose," "gesture," etc.) and visitors could not see the contents of the box unless they took them out of the shelves. By looking at the bland exterior, visitors had no idea what to expect and only two visitors ventured a look inside.

The lack of visitors at the Activity Box Station surprised the education staff because *Material Lab* (the lab that immediately preceded *MoMA Art Lab: People*) had a similar station visitors engaged with frequently and for a long duration. During education staff interviews, many of them thought the boxes had good content but were under-utilized for other reasons. I asked Ali, a facilitator, what stations she thought were the

best resources in the lab (not necessarily most popular). In addition to mentioning the Puppet-Making, Exquisite Corpse, and Magnet Wall Stations, she said

> The activity boxes. That's the biggest challenge for us. I don't know if it has to do with the positioning–they're in the back of the space, and they are relatively text-heavy. Something we're looking at at the moment is putting up a prompt that would be slightly more direct. 'Make a face' or something like that. So that's something that might be interesting to watch develop over the next few weeks.

She considered the boxes to be good, but the staff was having trouble getting visitors interested in them. Still committed to the value of activities in the boxes, Ali thought the issue might be corrected by modifying the boring and uninformative signage.

Another facilitator, Kristen, also agreed that the Activity Box Station was good but underutilized. "A lot of those activities have direct connections with works of art, but even to get people interested in that activity takes some facilitation." She made the suggestion of moving a single box to an open space at the Fresh Paint table near the front of the lab and taking the activity out of the box to make it look more enticing to visitors.

When I asked Cari (one of the lead lab developers) what she wanted to improve in the lab, she identified the activity boxes. Cari said that in *Material Lab* the boxes were at the front of the space. Because they were so prominent facilitators felt the need to explain the boxes to families in their introduction to the space and the introductions were quite long. Cari said that the activity boxes were intentionally moved from the front of the lab in *Material Lab* to the back in *MoMA Art Lab: People* because

> the last time we had so much introduction….And, it's been successful in that its freed them up [the facilitators], but [the activity boxes] also get ignored. What can we do to bring them out? A facilitator had an idea the other day to put one on the table with the computers [near the front] and see if that attracts people.

Here, Cari recognized that the boxes had not attracted visitors. She thought about why that might be and turned to other staff members to help fix the problem (in this case, Kristen). There was a different problem with the boxes in a previous lab (very engaging but at the expense of a lengthy introduction), which they modified in the next lab (boxes moved to back, no longer requiring an introduction). But, now a different problem emerged.

I interviewed Liz, the lead developer of the lab, a few weeks after my observations and the other interviews. I asked if there were any issues in the current lab she wanted to address. Liz's response referred to the activity boxes (among other topics), as well as the staff's attempt to increase engagement with them:

> We were finding that our activity [boxes], which were farther into the space this time, weren't being utilized as much. Partly that was because [the facilitators] weren't giving the major speech about them [that they were in *Material Lab*]. So we asked our facilitators to introduce those. And also, if they had older kids, really to bring them over to that first. We're also working with [the graphics department] right now to change the graphic on [the boxes].

Four MoMA educators all noticed the station was not successful, discussed it with each other, and made changes (first, moving a single box to the front; second, including the boxes in the introduction; third, redesigning the graphics on the box). These changes all occurred between the day of my final observation and my interview two weeks later with Liz Margulies so I therefore was not able to see the implementation myself. Even after all that, could the problem actually be the content? All of the attempts to make the boxes more engaging occurred after my site visit, so I do not know how effective the modifications were. Regardless, I had many discussions about the activity boxes, which were almost always initiated by staff members, regarding the disappointment in the under-utilization of the boxes by visitors. But no one mentioned the iPad, which was

actually even less successful than the activity boxes. I do not know why the Activity Box Station was the only one mentioned as needing improvement.

To summarize, the boxes were an example of a station not effectively engaging visitors, at least partially due to a bad location (the very back of the lab) and an uninviting aesthetic. An additional side effect of the boxes being placed in the back was that facilitators were less likely to talk to visitors about them in their introductory speech, meaning groups were less aware of the station's presence.

iPad Station

The mother from Group 4 was the only person to use the iPad and it was only for thirty seconds. The iPad station seemed the least effective at engaging visitors. When comparing this station to the Fresh Paint Station, a few similarities and differences emerge. These two stations were similar in technology and content, but vastly different in their ability to engage visitors. The Fresh Paint Station had four computers, its own table, clear signage, was located in the front of the lab, and the screen always displayed the program. In contrast, there was only one iPad in the back of the room, it shared a table with another (more enticing) station, the iPad signage was usually hidden, and the screen was almost always black because the device went to sleep. Illustration 13 (below) depicting the iPad station (on the left side of the table) clearly shows that it is not particularly inviting or engaging.

Illustration 13: iPad Station

There were various reasons why the MoMA educators did not do more to promote this station. The lab is a small room and not all stations could have a large a space dedicated to them. If there was more space for additional iPads, there would be a secondary problem of purchasing these very expensive items. Furthermore, the education department designed the program on the iPad, called *MoMA Art Lab*, and released it in June 2012. According to Cari, its placement in the lab was for marketing purposes because it was a commercially available product, even though it did not fit within the theme of the lab as well as the other stations. The program itself was successful in many ways and received accolades when it was released to the public, but it appears as if barely any thought was put into displaying it in the lab. I will not discuss the content of the *MoMA Art Lab* iPad program because only one person looked at it (for thirty seconds) during all of my observations. This indicates that the content is not the issue–no one even saw the content. Or more accurately, the content could be an additional problem, but it is

not the initial problem. Based on my observations, the aesthetics of a station do affect visitor engagement.

Remaining Stations

The remaining stations (The Exquisite Corpse and Bookshelf Stations) are grouped together because they were not as effective at engaging visitors as the most popular stations, nor were they as ineffective as the Activity Box and iPad Stations. The Exquisite Corpse Station had five groups (1, 5, 6, 8, and 9) interact with it for an average of 7.5 minutes. The total visit lengths ranged from 4-10.5 minutes. Four groups (2, 4, 5, and 8) visited the Bookshelf Station. The overall average for all groups was 5.4 minutes. Clearly these were common stations to visit and play with for a few moments and were not failures, but other stations yielded richer interaction and data.

Intergenerational Engagement

This section shifts from focusing on overall engagement (frequency and length of visit) to intergenerational engagement. Many stations had a high number of intergenerational interactions (particular examples to be discussed shortly). A station engaged an intergenerational audience if the child and adult touched the station and interacted with it together, or if the child was playing with the station while the adult spoke with the child about the activity. There were no instances of the reverse (an adult directly manipulating a station while the child only spoke).

Groups 1, 3, 4, 5, and 7 all floated between working independently and intergenerationally throughout their visit. For example, the boy in Group 1 began his time in the lab by playing with the Fresh Paint Station making a work of art. His mother was behind him and spoke to him about what he was doing, occasionally lapsing into periods of silence. She then went to help his sister, leaving the boy alone for a moment before

eventually returning and helping him navigate the options on the screen to change the paint color. The group then went to the Puppet-Making Station, where the boy mainly worked on his own, but spoke with the other members of his group on occasion. This ebb and flow between working independently and intergenerationally is representative of the typical experience in the lab for five of the nine groups (Groups 1, 3, 4, 5, and 7).

There were few occurrences where an entire visit to a station was intergenerational in nature. The exceptions are the nannies from Groups 8 and 9 and the mother from Group 2, who all interacted with their children for either the entire visit or for the vast majority of it.

The only group I have not yet mentioned in this section entitled Intergenerational Engagement is Group 6, where the two mothers interacted together for seventeen minutes at the Puppet-Making Station and then were joined by their two daughters at the Puppet Theater for the remaining six minutes. The two young girls varied between acting independently, working together, and talking for the initial seventeen minutes. Compared to the other groups, Group 6 had very little intergenerational interaction in the first two-thirds of their visit. But the final third of their visit was entirely a collaboration between the mothers and daughters. They all acted as characters in the play, except for one mom who filmed the performance. Both mothers gave suggestions and spoke with their girls during the performance.

Because of the fluctuation between independent and intergenerational engagement for most groups, I was unable to measure exactly how long intergenerational interactions occurred in most instances. Therefore, I focus only on the frequency of intergenerational engagement at the stations and not on any sort of time measurement. Vignettes are provided to demonstrate the type of engagement that occurred at the stations with

example groups. The list is ordered so that the stations used most frequently intergenerationally are discussed first.

Puppet-Making Station

The Puppet-Making Station was used intergenerationally by all six groups who visited it (Groups 1, 3, 4, 5, 6, and 7). Group 1, which was composed of two young children, their mother, and another woman, all sat together at the Puppet-Making Station. The daughter sat in her mother's lap and they made a puppet together, with the mother leading and the daughter helping. The young boy and the other woman each made their own puppets, as they talked with the other members of their group. The children tended to only talk about their puppets while the women talked both about what they were constructing and other topics unrelated to the lab.

The grandmother and girl from Group 3 also worked on constructing their own puppets independently, but talked to each other while doing so. For example, the girl told her grandmother to look at her puppet and held it up, and the grandmother began praising her. After about five minutes the grandmother stopped working on her puppet, but continued to occasionally converse with the girl as she made her puppet. Although the mother from Group 4 occasionally played with the materials at this station, she did so infrequently and did not make a puppet. However, she consistently talked to her daughter as she worked. The mother from Group 5 worked together with her daughter the entire time they visited the Puppet-Making Station, but let the daughter take the lead. For example, the daughter was punching holes in pieces of paper while the mother held and rotated the paper for her.

As discussed multiple times, the mothers from Group 6 interacted primarily with the Puppet-Making Station on their own. The two daughters briefly started with their

mothers at this station and came back to see what they were doing every once in a while. Although the young girls did touch and manipulate the materials for a short period of time, they had a much more superficial type of engagement with this station compared to the participation in it by their mothers. The girl from Group 7 never went to the Puppet-Making Station. However, her father did with his son. As previously stated, Group 7 came as a group of nine people and I decided to focus on a more manageable number (two people, the father and daughter). I did not include the son as part of this study because I did not realize the two were related until later. I, therefore, counted the Puppet-Making Station as intergenerational for this group since it would not be true to say that the father engaged with this station independently, even though the person he engaged with was not included in the rest of my observations.

Group 3 actually had many different types of experiences at this station. The girl and her grandmother each made their own puppet and spoke to each other, but not a lot. Eventually, the grandmother stopped working on her figure, but spoke to the young girl about her puppet (usually complimenting it in some way). When the girl's mother walked in about fifteen minutes later, the girl ran over to her, accidentally dropping her puppet along the way. The two went to the Puppet-Making station and tried to fix it together (the mother interacting directly with the activity, but really only for the benefit of her daughter). I label all of these experiences as intergenerational for my study, but there are obviously more complex experiences happening within this "intergenerational" label. Although none of the six groups who used the Puppet-Making Station did so in the exact same way, all of them had both the children and adults interacting directly with the station at some point during their visit.

In her experience over the past three years, Kristen, a facilitator, found the Puppet-Making Station to be the most successful intergenerational activity in the lab. She

has seen multiple iterations of the space and said the following about stations that engaged intergenerational audiences:

> [The station] that really brings together kids and adults is the shadow puppet-making. I have found this in the last labs, too. When there is a kind of challenge, a design challenge…a lot of parents get into the construction of it. Just figuring out the puzzle and the physical challenge of putting it together. So they're really engaged in helping the kid figure that part out, or making their own because of that.

Kristen additionally stated that not only were families "learning about the materials and the process in their own way," but also they were "learning how to interact with and learn about each other."

This is noteworthy to my research because I am focused on adults learning alongside children. Activities like the Puppet-Making Station that demonstrated popularity with intergenerational audiences have some aspect to them that made all people (regardless of age) choose to interact with them.

Fresh Paint Station

The Fresh Paint Station was also used intergenerationally by all six groups who interacted with it (Groups 1, 2, 3, 4, 5, and 7). The children of Group 1 mainly used the Fresh Paint Station while the two adult women spoke either with the children or with each other. When the women touched the screen, they usually were helping the child with something (like how to erase). Group 2, which was a mother and a five-year-old girl, both interacted directly with the station, but the mother ended up taking over while the girl just sat and watched. The mother from Group 3 spoke with her daughter as the latter made a work of art, but only joined in the art-making at her daughter's insistence. The mother and daughter from Group 4 began their visit to this station with a lot of interaction (both with each other and the activity itself), but the mother began looking around and

stopped touching the screen after about six minutes. She later returned to the station on her own. Group 5 spent their time at the Fresh Paint Station similarly to how they interacted with the Puppet-Making Station: they conversed and interacted with the station the entire time, although the mother let the daughter take the lead. The father and daughter from Group 7 worked together at the Fresh Paint Station for about eight minutes. The girl mainly interacted with the station while the dad spoke with her and occasionally touched the screen to assist her.

If an adult and child were both interacting directly with the Fresh Paint Station, there were different types of interactions that could be occurring. In one case, the adult and child were creating together, equal partners in the endeavor. In another, the adult would touch the screen in a way that aided the child (perhaps showing them how to erase something), but this was not co-creation. In a final type of interaction, the adult's touch would actually impede the child's ability to interact with the station. The young girl in Group 3 was making a work of art at Fresh Paint and always made sure that her mother was helping to create the art. The daughter was not just asking her mother to show her how to change colors nor was the mother merely trying to email the artwork after the daughter was done with it. The two were collaborating. This is in contrast to what Group 2 did at the Fresh Paint station, where the mother led the activity.

Magnet Wall Station

The Magnet Wall was used intergenerationally by five groups (Groups 1, 2, 5, 8, and 9). The adults from Groups 1, 2, and 5 encouraged their children to use the Magnet Wall but did not actually interact with the station themselves. The nannies from Groups 8 and 9 both helped rearranged the magnetic shapes and letters into faces. People who used

that station tended to be the youngest visitors and, possibly because they were so young, were more likely to have adults interact with them.

Discussion of the final stations is organized by the number of groups that interacted with them intergenerationally. I provide short vignettes to demonstrate the types of engagement that occurred at each station, but do not go into as much depth as I did for the Puppet-Making, Fresh Paint, and Magnet Wall stations because the interactions were less notable.

Stations Used by Four Groups

The Puppet Theater, Exquisite Corpse, and Drawing Station were each used intergenerationally by four groups. The four groups who used the Puppet Theater intergenerationally (1, 3, 4, and 6) did not do so in a uniform manner. The adults from Groups 1 and 3 just watched their children put on a play, while the women from Groups 4 and 6 actually put on a play with their daughters. The Exquisite Corpse Station was used intergenerationally by Groups 1, 5, 8 and 9. In all of these groups the adults spoke to the children while they drew, but the women from Groups 1 and 8 also drew alongside their children (unlike the adults in Groups 5 and 9). As previously described, the groups that visited the Drawing Station (3, 4, 8, and 9) only had children interact with it directly while the adults spoke to the children as they drew.

Stations Used Intergenerationally by Three Groups or Less

The Bookshelf Station was used intergenerationally by three groups (2, 4, and 8) and all of them actually played with the toys on the shelves, not the books. The Activity Boxes were only used intergenerationally by Group 8 (only one of two groups to visit the station at all). The iPad was not used intergenerationally by a single group and was the

only station not utilized by children and adults at some point during my observations in the lab. Again, only the mother from Group 4 interacted with the iPad Station.

Independent Adult Engagement

I analyzed interactions where an adult engaged with a station either by herself or only with other adults. In these instances, the child would neither be using the station nor interacting with the adult in any way. One of the premises of my research is that many family programs and learning events at museums do not engage adults (only children), but that MoMA is successfully engaging the adults who come as part of an intergenerational group. Therefore, I am particularly interested in stations that adults used on their own while in the lab. Examining such stations that engage adults to the point that they decide to let their child play independently while they used a station alone is useful to help understand how and why the lab is able to engage adults.

There were six stations used by adults on their own: Fresh Paint, Puppet-Making, Puppet Theater, Exquisite Corpse, Bookshelf, and iPad (see Table 4 above). Of all stations in the lab, Fresh Paint had the highest number of groups where an adult independently used it (two groups–4 and 5). All the other activities listed were only used once independently by an adult.

However, there are a wide variety of ways for an adult to interact with a station and various possible levels of engagement. Even though four stations were used independently by an adult one time, the type and length of engagement were very different between the stations. Again, the mother from Group 4 interacted with the iPad Station independently, but not for a particularly long time. Examining this station in-depth would not provide much information on an engaging station for adults since only one person used it and it did not sustain her interest for long. For the rest of this section, I

describe how particular stations were used independently by adults. I categorize those that were not used for a substantial amount of time into a single group at the end, along with the stations that were not used by adults independently whatsoever.

Puppet-Making Station

In contrast to the short periods of time most adults spent using a station independently, the women from Group 6 engaged with the Puppet-Making Station for seventeen minutes. None of the other independent adult interactions lasted more than (an estimated) three minutes so this was extremely unusual. Even though these women were the only adults to visit this station, the long duration of their visit is noteworthy and demonstrates the station's ability to attract adults. The mothers immediately sat down at this station upon entering the lab, talking with each other and playing with the provided materials. One of the mothers briefly went to the theater to see how her puppet looked on the shadow-puppet screen after about five minutes. She stayed there momentarily before returning to the Puppet-Making Station where she began making a few additions to her puppet. The other mother tended to play with the materials but did not make an actual puppet, nor did she take her creation to the theater. Both of the women were consistently interacting with the materials at the station and talking to each other. Because I was speaking with the daughters and following their movements more closely, I do not know what the mothers were discussing while they conversed with each other.

Fresh Paint Station

Fresh Paint had the largest number of adults (two) use it independently from their children. The mother from Group 4 occasionally added to the artwork her daughter was making at Fresh Paint, but usually the woman was more interested in exploring the features of the program. While her daughter was using it, the mother went to the options

to change colors and type of media (paint, oil pastel, etc.). A set of instructions next to each computer informed visitors how to use the program and suggested additional ways to interact with it (look at artworks by previous visitors, email an artwork home, or take a picture of yourself and use the program to draw over it, to name a few). The mother spent quite a while reading the instructions, and later revisited the station multiple times. She took a photograph of herself using the tablet, and later went back and emailed it. Towards the end of their visit, the mother and daughter went back to the computers together and began making another work of art, but this time collaboratively. Eventually, the mom started spending a lot of time examining the options to the color. The girl did not seem visibly annoyed, but eventually moved to the computer next to her mother and started working on a different artwork. Both the mother and daughter would occasionally stop working on their own art to look at what the other was doing, and periodically spoke to each other.

The mother in Group 5 also worked independently on Fresh Paint, but did so only once and was much less interested in exploration or making her own art than the mother in Group 4. The mother from Group 5 simply tried to figure out how to email the work of art (which took her a few minutes to do) while her daughter was at a different station.

What about these stations enabled them to interest adults? Was it solely the station that encouraged this behavior, or did the individual family dynamics play a role in adults engaging with an activity on their own? Possible answers to these questions and related ideas are discussed in the final chapter.

iPad Station

As previously mentioned, the mother from Group 4 used the iPad for approximately thirty seconds. Although that is not a long time, this station is notable

because it is the only example where the child did not choose to join the adult from their group while they interacted with a station. The mother and daughter were interacting together at the Puppet Theater Station when the mother decided to visit the iPad Station. She played with the program while her daughter remained at the theater for a short while. A few seconds later the young girl went to the Drawing Station and eventually the two reconvened.

Remaining Stations

The Puppet Theater, Exquisite Corpse, and Bookshelf Stations each had an adult use it independently from their child one time. All of these interactions were either immediately preceded or followed by an intergenerational interaction where the adult and child worked together. None of these interactions were long and none were particularly notable. The Magnet Wall, Drawing, and Activity Box Stations were never used by an adult independently.

The preceding sections described different ways visitors engaged with stations, with a focus on the length and frequency of station visits, intergenerational engagement, and when adults visited stations independently from their children. Additionally, vignettes describing visitor interaction with the stations and with each other revealed the character of their engagement in the lab.

EMERGING TRENDS IN *MOMA ART LAB: PEOPLE*

In reviewing the data compiled through my observations and interviews, some overarching themes and issues emerged. I identified seven trends in particular, all of which relate to visitor engagement within the lab. I describe them at length in the following section.

Art-Making Stations

The four stations in the lab where visitors made a work of art (drawing or constructing with real or digital materials) were the activities with the longest average visit length. The stations with art-making components along with their average visit length were as follows: Puppet-Making Station (19 minutes), Fresh Paint Station (12.6 minutes), Drawing Station (10.3 minutes) and Exquisite Corpse Station (7.5 minutes). Except for the Drawing Station, each station had at least one adult interact with it independently and the Fresh Paint Station was engaged by two different adults independently. The Fresh Paint and Puppet-Making Stations had the most number of total groups visit them out of all stations in the lab (six each) and every single group who visited them used both stations intergenerationally. The Exquisite Corpse and Drawing Stations had less visitors than the Fresh Paint and Puppet-Making stations, although not substantially less (five and four respectively). Four of the five groups who visited the Drawing Station used it intergenerationally and all four of the groups who utilized the Exquisite Corpse Station used it intergenerationally. It is clear that stations with an art-making component had visitors consistently engaging with them longer than the other stations. I focus on one specific station for aspects of this discussion, but many of the points raised apply to all the art-making stations.

First, art-making as an activity appeared to be appropriate for people of all ages; children and adults can (and did, in my observations) create art. The Puppet-Making Station supplied a limited number of supplies and displayed signage that said, “Make a figure for the puppet theater,” and in smaller font below that appeared, “What will your figure be doing? How will you position the figure’s body to show that action?” These simple materials and prompts were enough to entice many adults to engage the station with their family.

The very youngest children just played with the materials in what appeared to be a developmentally appropriate way for them to interact with the station. Children that were a little older made a puppet, while the oldest children and adults considered the specific questions posted on the sign when constructing their puppet. However, the distinction between ages and station use was not true for all situations, as some adults merely played with the materials and some young visitors appeared very contemplative and made numerous adjustments to their puppets after testing it at the theater (such as the young boy in Group 1). Although it is not in the stated instructions, multiple members of the education staff said that they were much more interested in fostering creativity as opposed to specific outcomes (such as actually making a puppet). An interest in exploring materials did not appear to be limited to children, as demonstrated by the adults who chose to just fold paper and insert brads at the Puppet-Making Station instead of constructing a puppet. The exploration could have aided in understanding process and materials for all people or have served as a relaxing activity. The point is that people appeared to interact with the stations as they wished and in ways that were appropriate for them. The art-making stations enabled people to modify the activity according to their skill level and desire. I never saw anyone tell someone that they were doing a station incorrectly–people realized the art-making stations were intended to be used in the way each visitor wanted.

Just like with the Puppet-Making Station, the different levels of complexity at the Fresh Paint Station seemed to cause it to be successful with visitors of all ages. A two-year-old (such as the young girl from Group 5) ran her finger along the screen and merely produced scribbles, while an eight-year-old (such as the girl from Group 3) created a recognizable scene and made use of the different colors and forms of media available on Fresh Paint. An older child or adult was more likely to use the advanced features (taking

a photograph and then manipulating it, for example, like the adults in Groups 4 and 5). Many of the adults who used this station first made a work of art with their child, but then went back later to explore the more complex components (such as the mothers in Groups 4 and 5 who emailed artwork or scrolled through previous visitor's art).

Many of the aspects described above were not present in the non-art-making stations. I discuss the Magnet Wall because in some ways it was very successful at engaging people (it had six groups visit it), but had an extremely short average visit (1.8 minutes) and zero adults engaged with it on their own. How can it be so successful in one way while ineffective at holding visitors' attention or attracting adults? A possible reason could be the simplistic nature of the activity–people arranged magnetic letters and shapes to make a face; that was it. The opportunity for various levels of engagement did not exist like they did in the art-making stations. The youngest children could work on hand-eye coordination and fine motor skills when rearranging the magnets, while older children and adults could follow the instructions and actually attempt to make a face out of the magnets. However, that does not take particularly long to do and there was not an obvious way to make the activity more complex. It did not interest adults based on my observations in the lab. Even when an adult used the wall intergenerationally, she was almost always only speaking with a child as the child used it, and not actually interacting directly with the station herself.

I cannot say that the Magnet Wall station was unsuccessful since six groups did visit it, but the short duration of their visit does signify that it was unable to hold people's interest, regardless of age. I did not discuss the other non-art-making activities in-depth because I wanted to focus on the Magnet Wall's superficial level of success (large number of visitors) in comparison to the deep engagement that happened at the Puppet-Making and Fresh Paint Stations. However, many of the concepts discussed here apply to

all of the non-art-making stations (limited number of ways to engage with the activity, etc.).

Although described in Chapter 4, I next discuss the location of the lab within the museum as well as the location of the stations within the lab. In these sections, I incorporate narratives and information from interviews that were not included in the previous description.

Location of the Lab

All the families who told me how they learned about the lab mentioned being members of the museums, a friend telling them, or a museum docent informing them. Not a single person mentioned just walking around the museum and coming across it. In the previous chapter where I described the lab in-depth, I wrote that the lab was actually in a completely different building from the art collection. When visitors do find the building that houses the lab, they then have to locate the lab underneath a stairwell. Liz has mixed feelings about the placement of the lab. The evidence mainly appears to support the idea that the location of the lab is problematic, as people had to already be aware of its existence and search it out. It is hard to imagine a visitor stumbling across it accidentally in its current location.

There are television screens behind the ticketing desk at the main entrance of the museum with scrolling information, and on rare occasions the lab is featured for a few seconds before scrolling to the next item. There are some signs informing visitors of the lab (at information desks on each floor). Front desk personnel are told to inform families about the lab as they buy their tickets. The facilitator, Kristen, told me that the lab was mentioned occasionally in newspapers or magazines for families as an activity to do in the city. I have named quite a few ways in which the lab is being promoted, but the lab

does not have much of a presence in the main museum building. The signs pertaining to the lab were small and located in areas that are easy to miss. It would be easy for a visitor to spend an entire day in the galleries and actually not see materials advertising the space. Whether or not the lab should be located in a different place is open to debate, but my interviews revealed that marketing of the space within the museum is lacking.

The lab is a long, skinny space, which is both a benefit and a drawback. The limited space means that there is only room for a limited number of activities and therefore support components such as chairs are usually very limited in number. However, the small space also insures that adults could see their children in the lab at almost all times, regardless of where either person was located. This is one of the aspects of the lab that enabled adults to "leave" their children and work at their own station. The adult can choose whichever station looks most appealing to him and does not have to worry about where it is in relation to the station his child is using. Additionally, even though the lab is located under a stairwell, an entire wall is composed of windows that face the sculpture garden. There is a beautiful view of outdoor sculptures and the entire lab is bathed in sunlight. Because of these various factors, it is not obvious that the lab would be better off in the galleries.

Location of Stations within the Lab

Another factor at play in a station's ability to engage visitors involved where the station was placed in the lab. The two stations in the front of the lab (Magnet Wall and Fresh Paint) had the largest number of groups visit them (six each) while two of the three stations that were the furthest back in the room were the least successful in attracting visitors (the iPad and activity box stations, with respectively one and two visitors).

The Puppet-Making Station was in the middle of the room, thereby enabling adults to sit and easily see what their children were doing, regardless of where they were in the lab. The mothers from Group 6 who played at the Puppet-Making Station by themselves might not have chosen to sit at the station if it meant they could not see their daughters. Other adults also sat at the Puppet-Making Station while their children eventually left and explored other stations (the grandmother from Group 3 for example).

Families, in general, were definitely aware of seating (two families actually mentioned suggestions regarding chairs in their interviews). From my interviews with Liz and Cari, I know that the table selected for the Puppet-Making Station was intentionally round so families could more easily gather around it as a group. Something as simple as the shape of a table encourages people to interact with each other. People are more likely to talk if they are sitting in a circle facing each other, as opposed to sitting in a straight line. All the other stations that included chairs aligned them so everyone faced the same direction, not each other. Also, people could sit comfortably in a chair at this, rather than at most other stations, which required people to sit on the floor.

Visitor Enjoyment and Repeat Visits

While the groups were interacting with the stations, I wondered what they thought of their visit to the lab overall. I included a few questions in my interviews to get at the heart of the matter, but many visitors supplied information regarding this topic in ways I did not expect. I defined visitor enjoyment as a person stating (directly or indirectly) that she had a positive experience in the lab. For example, the mother from Group 4 and the father from Group 7 both said that they would recommend the space to other families, which are forms of indirectly praising the space. This section relies entirely on data from

the interviews supplied by the intergenerational groups and MoMA staff. Since I did not interview Groups 1 and 2, I will only be discussing Groups 3-9 for this section.

Every group I interviewed was extremely complimentary of the space. The daughter from Group 3 said that she would recommend the lab to her friends, and the mother replied, “We love it.” The woman in Group 5 said, “Great space. Great idea.” One of the girls from Group 6 simply stated, “It’s fun.” When I asked the mother from Group 4 what she would improve in the space, she said, “There is no negative thing. It’s a great space…. People become members and they come here free.”

There was a connection for the interviewees between repeat visits and being a member of the museum. Data regarding visitor enjoyment and people who have been to some iteration of the lab more than once were intertwined in the interview responses, even though I never asked if any of the groups were members of the museum. Three of the seven offered this information at some point during the interview (Groups 4, 5, 8). A fourth group (Group 9) spoke of coming frequently, although they did not mention being a member and I did not ask. Two of the groups (5 and 8) told me that they were members in response to the question, “How did you learn about the lab?” The mother from Group 4 responded to that question by saying that she had been introduced to the space by a friend a few months ago. When I confirmed that she was a repeat visitor to the lab, she told me of her membership status. Cari, one of the staff responsible for the space, actually said that some families became members of the museum specifically because of the lab.

One possible sign of enjoyment of the lab was that a person chose to repeat the experience, indicating that the original visit was positive and worth replicating. Individuals from multiple groups (4, 5, and 9) mentioned the desire to visit the lab in the future or having come previously. A visitor saying they enjoyed the space was

noteworthy, but a visitor who demonstrated this belief by coming again and again provided proof that she valued the lab experience. Some of the groups in the study returned to the MoMA lab weekly, while others stated that they came on an irregular basis. Group 5 said that when *Material Lab* was open (the lab immediately before *MoMA Art Lab: People*), she came with her daughter about once a week and then, referring to her daughter, said "She asks me to come here. She says, 'Let's go to the lab!'" During our interview Liz, the lead developer of the space, also described children telling their parents that they wanted to go to the lab in MoMA. According to Babe, a facilitator, children requesting to return to the space is not unusual. She described an experience where a boy and his father were working with various materials (wooden blocks and a small piece of cloth, among other items) to make a face by arranging the items. While they were preparing to leave the boy said that he wanted to come back to the lab and see what more he could do with the activity. The boy had not yet left the space and was talking about returning.

Groups 4, 5, and 9 mentioned visiting the space previously. Two of these three groups were those who referred to being members. As described earlier, the lab is far away from the galleries and people do not usually stumble across it accidentally. This issue of the location of the lab and membership is discussed more in the following chapter.

Differences Between Visitor Beliefs and Actions

All visitors mentioned enjoying the lab and said it was a worthwhile space. However there were many instances where what the visitor stated in their interview did not align with what I observed her doing in the lab. I asked the adults in Groups 3, 4, 5, 7, 8, and 9 if they thought the lab was a good space for children, adults, or both groups.

Everyone answered that the space was good for children and adults. The mother from Group 5 said, "I think it's open to everybody. I think that's the case." I asked the children in Groups 3 and 7 the same question, and they both responded that it was a place for adults and children as well. However, every adult I observed was clearly not using the space as often or becoming as involved with the activities as were the children. The one exception to this was Group 6, where the mothers only engaged with each other at the puppet-making station for over half of the visit. I realized that when adults stated that the lab was good for both children and adults, they did not say the space was *equally* beneficial for both audiences. Did they mean that the space was mainly intended for children, but adults could find something to do to pass the time in there as well? Or, did they think the lab was equally satisfying for both children and adults, but did not actively think of it that way until I posed the question? I take a deeper look at some of these inconsistencies in the final chapter.

Each group visited between three and seven stations during their visit to the lab (Table 2 above). When all groups are combined, they experienced a total of thirty-nine station visits. Of these thirty-nine station, there was only one instance when the adult in a group engaged with a particular station and the child never visited it–when the mother from Group 4 used the iPad. However, there were five instances when only the child in a group used a station and the adult never interacted with it. Additionally, the vast majority of the time recorded in my observation log involved only children interacting with a station while adults spoke with them about what they were doing. By and large, children used this space substantially more than adults. But as I just described, every person I asked said the lab was good for both. If the adults said the lab was good for both children and adults, why did they interact with the stations so much less frequently than did the children?

The mother from Group 4 said that her daughter would enjoy the space more when the girl was a year or two older (when the daughter was four or five years old). Her mother also said that she and her daughter did not do any activities together. However, this group spent the second-longest amount of time in the lab (fifty-six minutes), indicating the daughter enjoyed her visit and the stations held her attention for longer than average. This group also used the most stations intergenerationally (five stations, which was tied with Groups 1 and 8). The mother explored the Puppet-Making and iPad Stations on her own, in addition to the five stations she used with her daughter. I was surprised to hear the woman say that she was not interacting with stations independently. Did she not realize she acted on her own? She said, "I'm not really doing anything. I just help her do whatever she wants. So I have to sort of watch." She said this in response to my question asking if her purpose was to support her daughter's experience in the lab or if she was there for her own benefit as well. Immediately after posing that question I asked if she thought the lab was geared towards kids or adults and she said, "I think it's great for both." There is a contradiction between saying she was only there to support her daughter, but that the lab was good for adults and children. Did she want to interact with her daughter and the stations more? Was the issue that she felt like her daughter wanted to play alone?

The mother from Group 3 also stated that she was only there to support her daughter. Ironically, this group used four stations intergenerationally, only once less than the previous group. My interview question asking whether the mother considered the lab better for children or adults elicited a response that the lab was good for both age groups. For some reason, both these women said that the lab was good for all ages, but when asked how they personally used it, they said they were only there for their children. Again, did they not realize they were interacting with the stations? And why did they say

the space was good for children and adults, but then state that they were only there for the needs of their child?

The following section describes ways in which the educators at MoMA linked the lab to the art in the galleries. It also discusses examples of groups who visited both the galleries and the lab during their trip to the museum.

Making Connections to the Rest of the Museum

I defined a connection to the rest of the museum as a group visiting (or intending to visit) the galleries in addition to spending time in the lab. Although it is important for groups to engage with each other and with the activities in the lab, one of Liz's goals was to get visitors to go to the galleries as well. When I asked Liz what she wanted visitors to gain from the lab, she replied, "I really hope they're making connections between the space and their visit to the museum. That this space isn't all. That they know this is *part* of the visit to the Museum of Modern Art." It is important that families get engaged with the specific stations and enjoy their time in the lab, but there is a larger purpose for the space.

During the interviews I did not ask the groups if they were going to see the art before or after their experience in the lab but, unprompted, two groups supplied this information. The nanny from Group 9 stated that she intended to bring the twenty-two-month-old boy to the galleries after the lab. Group 3 visited the museum first and then came to the lab. They explore the galleries, went on an audio guide tour, and had lunch at the café before heading to the lab. Even after having spent what sounded like quite a bit of time in the museum already, Group 3 stayed in the lab for fifty-three minutes (the third longest lab visit of the nine families).

What do the lab creators and facilitators do to encourage connections between the galleries and the lab? Liz stated that she hoped families could begin a conversation in the lab, prompted by the stations, and then "transfer that, and continue that conversation in the galleries." When asked what the lab does to aid that transference, she described how facilitators were trained to work connections to the galleries into their conversations with visitors in the lab. She also said that the stations themselves feature the collection and are intended to provoke thought on the art in the galleries.

Some stations have a more direct connection to the MoMA collection while others are more conceptual. For example, the Activity Box Station has at least one reproduction of a work of art in each of its twelve boxes. On the other hand, visitors are encouraged to make a portrait at Fresh Paint, and many portraits are located in the galleries. However, no reproduction of a portrait appears near the station. Moreover, many visitors chose not to make a portrait using Fresh Paint and instead painted a scene of their choosing.

The direct link to the collection is not always there for the visitors, but the facilitator, Kristen, found ways to make connections between the lab and the stations. When I asked her what she hoped visitors would get from their experience in the lab, she replied that she wanted them to feel comfortable in the museum and that they should

> have an engaging time in lots of different ways at the museum. I hope that they're making some connections (or that we're helping them make some connections) with what they're doing in the galleries. Whether it's a particular painting they're making on the digital painting screen [Fresh Paint] that reminds me of Gros, Vermeer, *Three Musicians*–calling it out.

Kristen inquires if visitors in the lab have been to the galleries, and if they answer in the affirmative, she asks what they have seen. She then tries to find ways to connect those pieces to the lab. Even if the visitor did not walk through the galleries before visiting the

lab, Kristen tries to find ways to work pieces of art from the collection into the conversation. In the part of the interview quoted above, she mentioned telling a visitor that his work of art on Fresh Paint reminded her of another work of art in the galleries (Picasso's *Three Musicians*). Kristen can grab one of the books from the bookshelf and show the work of art she is referring to, or suggest that the visitor go and see that piece after their time in the lab. Although Kristen engaged with a family for the longest amount of time out of all the facilitators in my observations, Ali (another facilitator) also encouraged conversation about MoMA's collection. During Group 3's visit, she asked the young girl if she saw any art that she liked in the galleries. The facilitators do attempt to provide that connection between the lab and collection, although perhaps not as frequently as envisioned by Liz. As mentioned earlier, aside from the initial introduction, the facilitators did not interact with the visitors very frequently during my observations in December 2012.

Differences Between Parent-Child and Nanny-Child Interactions

An unexpected piece of information that arose from my data was the difference in interactions between nannies and children compared to parents and children. Although only two nannies were part of the study, there was clearly a difference between how they engaged with the activities and with their children compared to how the parents and grandparents interacted with the children in the remaining seven groups.

The nannies (Groups 8 and 9) were almost always completely engaged with their children. In my initial description of the groups earlier in this chapter I said that the nannies were often talking with each other or with the child from the other group. Even if the nanny was talking to someone else, her child would be in her lap, or she would still interact with the station and with the child while talking with the other person. The only

time a nanny was disengaged from the child was when I interviewed her, but even then the nanny made sure the child was playing with the other nanny or the volunteer. If the child was in the lab with a nanny, the child was constantly being engaged by an adult.

Very few parents gave their child the same degree of attention that the nannies provided the children; the notable exception was the mother from Group 2 who constantly interacted with her daughter. However, her interaction with the child was clearly different in that she was taking control of what the daughter did at the station and not supporting her daughter's exploration (she impeded it, actually).

In contrast to these three groups where the adults were heavily engaged with the child is Group 1. The boy from Group 1 actually avoided one of the adult women in his group, so she eventually just stood and watched the boy or interacted with a station by herself for most of their visit.

Although the mother and child from Group 4 began interacting together at the Fresh Paint Station, the mother gradually stopped touching the screen and talking to her daughter. Instead, she stood behind her, looking around the room and was not engaged either with her daughter or the station. After about two minutes she regained focus and started touching the screen once again. This general decline in engagement at a station is representative of many interactions in Groups 3, 4, 5, and 7. None of the adults ignored their children, but they did not maintain the sustained interest and engagement like the nannies did.

Occasionally the parents were being attentive to the child, but not in a way that encouraged their child's engagement or learning. For example, the mother in Group 2 continuously interacted with her child, but her interactions often involved trying to change how her five-year-old daughter used an activity. The mother interacted with her

daughter, but the daughter became visibly frustrated multiple times as her mother took over the station that the child had been enjoying.

Nannies appeared to be more skilled than the family members at connecting ideas outside the museum to what their children were doing in the lab. At one point the nanny and child in Group 8 were at the Magnet Wall Station rearranging the large magnetic letters to make a face. Suddenly the girl began singing the alphabet song that many people learned as children. The station was intended to be used as a place to make a portrait out of unusual components (letters), but the girl realized that those unusual components were something she knew outside the lab as well.

Both the nannies from Groups 8 and 9 encouraged their children to speak and engage with others outside their group. At one point all four of them were sitting together at the Drawing Station talking with one another. The volunteer in the lab also started playing with the children, and the nanny from Group 9 took a picture of her young boy as he played with the volunteer. The nannies promoted socialization. There was only one instance of anyone from the family groups (Groups 1-7) speaking with someone outside her group, which is discussed shortly.

The nannies appeared to overtly work on the social and intellectual development of the children more than the mothers, fathers, and grandmother in the study. Moreover, the children accompanied by the nannies seemed receptive to their facilitation of the lab experience. Parents engaged their children, but were not able to produce the same depth of response that the nannies elicited. For example, the woman from Group 1, after seeing that the boy was finished drawing at the Exquisite Corpse Station, exclaimed, “Oh boy! I can’t wait to see!’ She was trying to interact with him, but she was not asking him questions or making the boy explain his drawing (he ended up not responding and walking away once she walked up to him). The mother from Group 2 was constantly

using positive reinforcement ("Good job"), but did not attempt to have the girl talk about what she doing. In fact, she took a robot from the bookshelf away from the girl to show her how to use it, but never gave it back to the girl to explore on her own. The grandmother from Group 3 also praised her granddaughter ("That's nice"), but did not have a more complex conversation than that. The mother from Group 5 went to the Puppet-Making Station and said, "Ok, let's make this. We have to be very careful!" Again, the parent was talking to her child but was not promoting further discussion.

The parents were also less likely to model behavior for the children like the nannies were doing. There was one instance of visitors in Groups 1-7 interacting with people outside their group (aside from facilitators). The daughter from Group 2 told her mother she wanted to play with the Magnet Wall. Another girl her age (approximately five) was already at the wall. The mother told her daughter that someone else was using the station and they needed to wait their turn. The little girl at the station turned to the daughter from Group 2 and told her how to use the activity and the two had a short conversation. Clearly, learning to share, wait your turn, and speak comfortably with others were social skills the mother encouraged in her daughter. The nannies had many more examples of this type of behavior, compared to the parents.

As previously discussed, the parents often were silent for minutes at a time, and then the conversation was often just a few words and not an actual discussion of any length or depth. What are some possible reasons for the discrepancy between how nannies and parents interacted with the children? How did that interactive discrepency affect the experience the children and adults had in the lab? What might museum educators learn from the nannies' actions? This will be discussed further in the following chapter.

The facilitators in the lab had a different type of interaction with the children than the parents and grandparents, more akin to the nannies' interactions. As mentioned earlier, Kristen engaged at length with the girl from Group 3. She asked probing questions. Ali did so as well. The girl asked why there was a hole puncher at the Puppet-Making Station and instead of saying why, Kristen asked the girl why she thought the tool was there. She later returned and asked the girl to describe what she was working on at the Puppet-Making Station. In another example the child from Group 3 drew a picture of a tarsier (an animal) at the Drawing Station and talked with Kristen (not her mother or grandmother) about how she learned about tarsiers in school.

Facilitators of the lab and nannies are paid to interact with children as part of their responsibilities. Does this account for why they were eliciting these types of experiences that I did not witness the parents engaged in creating activities? Do the different motivations between nannies, facilitators, and parents have an impact on the type of interactions they have in the lab? Questions raised in this section are discussed in the following chapter.

CONCLUSION

As described in this chapter, each of the nine groups I observed had a unique experience in the lab and interacted with a range of stations and visited the lab for various amounts of time. Certain stations proved to attract more visitors or held their attention for longer than others. Because of my interest in how adults used the lab, I paid close attention to interactions that were intergenerational in nature, as well as interactions with a station by an adult independently from her child.

Although some similarities existed between how all groups used the lab, there were differences in the length of time spent in the lab, time spent at various stations, and

various types of engagement with stations. There were also notable trends between types of interactions with people and their beliefs. I also noticed certain recurring events that I had not anticipated, such as the difference between the interactions of parents and nannies. In the final chapter, I attempt to interpret the findings and questions that I pose here.

Chapter 6: Effective Engagement in the MoMA Lab

I initially chose to study the interactive, intergenerational learning space in the Museum of Modern Art because the institution's website and a staff member responsible for the space described it as engaging for adults as well as children, which aligned with my interest in making group learning experiences in museums truly intergenerational. Both of these sources were potentially very biased in favor of the lab, entitled *MoMA Art Lab: People*, so I was glad to confirm for myself during my internship over the summer of 2012 that adults were using the lab. I had not come across many museums that in my opinion adequately focused on engaging the adults in a family group, and was glad to see that MoMA was emphasizing intergenerational learning.

I did not realize how much I would appreciate the fact that I saw two iterations of the lab (*Material Lab* in the summer of 2012 and then *MoMA Art Lab: People* in December 2012). Although I did not officially collect any data from *Material Lab*, I had already been thinking about many aspects of the lab and intergenerational learning as it occurred in MoMA. I was also aware of most of the stations in the new lab before I left that summer, giving me time to think about them before I arrived at the new lab to collect data for this study. So, what aspects of *MoMA Art Lab: People* and its activities were conducive to effectively engaging adults as well as children who visited the Museum of Modern Art as intergenerational groups? What implications for other museums can be derived from the experiences of intergenerational visitors to the lab? This chapter describes what I learned from observing nine families, interviewing seven of them, and speaking with five members of the education department about adult engagement in intergenerational groups in the MoMA lab.

FACTORS IN THE MOMA LAB THAT ENABLED EFFECTIVE ADULT ENGAGEMENT

During the development of the stations, Liz and Cari (the two main developers of the lab) made a concerted effort to provide different types of activities, and anticipated that visitors would want to use the exact same station in many different ways depending on their age, interests, and other variables. Although I speculated that people of a similar age would tend to be attracted to the same stations, this was not the case for the most part (although Magnet Wall was an exception and tended to have younger children use it more than older children). In this section, I examine how three aspects of the lab encouraged adults in particular to engage with the stations: (a) art-making activities; (b) a socio-cultural learning context and the opportunity to be social; and (c) a design that promoted group interaction and comfort.

Art-Making

As described in Chapter 5, the four stations that enabled visitors to make a work of art by drawing or constructing with real or digital materials were the stations that had the longest average visits (19 minutes at the Puppet-Making Station, 12.6 minutes at the Fresh Paint Station, 10.3 minutes at the Drawing Station, and 7.5 minutes at the Exquisite Corpse Station). All four of these stations had at least one adult interact with it independently from their accompanying child, except for the Drawing Station. The Fresh Paint Station had adults from two different groups interact with it. Every group who used the Puppet-Making, Fresh Paint, and Drawing Stations utilized them intergenerationally. Four of the five groups who encountered the Exquisite Corpse Station used it intergenerationally. It is clear that stations with a creative art-making component had visitors consistently engaging with them longer than the other stations and were enticing the adults to interact with them.

In my literature review in Chapter 2, I referenced many researchers who stated that adults want hands-on activities when learning (Bingmann, Grove, & Johnson, 2009; Black, 2005; Sachatello-Sawyer & Fellenz, 2001). Although using one's sense of touch and interacting directly with the stations was not limited to the art-making activities, they required more direct and prolonged interaction compared to some of the other stations (such as the Bookshelf Station, where visitors would hold a book but not manipulate and create to the same extent, or the Magnet Wall Station, which held visitor's attention for a very short time).

People want to interact with activities in the way they wish and are appropriate for them (Bingmann, Johnson, & Grove, 2009). The art-making stations did just that, and let people modify the activity according to their skill level and desire. I never saw anyone tell another that he was doing a station incorrectly–people realized the intent behind the station was for it to be used as each visitor wanted. The flexibility of the stations encouraged people to visit for as long (or short) as they desired and this explains the large range in visit lengths.

The different levels of complexity at the Fresh Paint Station caused it to be popular with visitors of all ages. Many of the adults who used this station first made a work of art with their child, but then went back later and either constructed their own work or explored the more complex components (such as the mothers in Groups 4 and 5 who emailed artwork or scrolled through previous visitors' art). Although the mothers from Groups 4 and 5 were initially only supporting their daughters, the activity was enticing enough to lure the women back after the children decided to move on to a different station. This is almost the epitome of what I was hoping to find–activities that were genuinely interesting to people regardless of their age. This is in contrast to

activities that were kid-friendly, but an adult would only interact with if her child played with it (such as the Magnet Wall).

One of the reasons for the across-the-board ability to engage adults (and children) of the art-making stations is that the activities enabled behavioral learning in fun and creative ways. Sachatello-Sawyer et. al. (2002) described behavioral learning as learning new physical skills. Both children and adults gained or honed fine motor skills and/or specific artistic skills at various stations within the lab. At the Puppet-Making Station, for example, visitors could merely manipulate materials or actually construct a puppet (each of these behaviors represented by the two women in Group 6). The Drawing and Exquisite Corpse Stations required visitors to use colored pencils and markers to draw their work of art. These are skills both the children and adults likely had learned previously and the time spent drawing or coloring was practicing an action they already were familiar with in their lives outside the museum. The Fresh Paint Station was entirely digital, but still required visitors to use their fingers to draw. People also had to figure out how to change paint color, zoom in, scroll through others' works of art in an online gallery, and many other tasks that all required physically manipulating the tablet and learning how their hands affected the action on the screen. Although many visitors appeared knowledgeable about how to use a tablet computer and touch screen (which the Fresh Paint Station utilized), they had never used Fresh Paint and were learning about the program itself in addition to art components such as mixing colors and drawing. Fresh Paint seemed to employ the largest variety of skills of any of the stations due to its many levels of engagement.

Bingmann, Grove, and Johnson (2009) referred to a paper published by the Family Learning Forum that identified characteristics of exhibitions meant to enhance family learning. In this paper it was said that both children and adults need play that is

creative yet purposeful and allows for open-ended experimentation. The art-making activities in the lab provided prompts ("Make a portrait," for example), but encouraged visitors to use the station in any way that they desired, whether that aligned with the prompt or not. The Family Learning Forum paper also suggested including a take-home component that the family could keep as a tangible reminder both of the museum visit itself and of the particular activities pursued during the visit. Two of the four art-making stations (the Puppet-Making Station and the Drawing Station) allowed the visitor to take home her creation. Visitors could email home their artwork from the Fresh Paint Station and they also had the option to buy the Fresh Paint program online and to install it on their own tablet. The Exquisite Corpse Station did not have a take-home component, but it was common for visitors to take photographs of their drawing with a cell phone.

In their list of characteristics of successful family learning experiences, Bingmann, Grove, and Johnson (2009) also stated that the learning needs to empower both the children and adults and enable them to contribute and feel confident in their ability to complete the activity. Because the art-making activities did not have a "correct" answer, adults were able to create a work of art without feeling that they were doing it "wrong." At the Puppet-Making Station this was bolstered by the fact that sample puppets (produced by people of all ages) hung on a nearby wall. Adults were able to see that a variety of skill levels were encouraged.

Many of the aspects described above were not present in the non-art-making stations. I use the Magnet Wall as an example because in some ways it was very effective at encouraging engagement (six groups visited it), but the average visit was extremely short (1.8 minutes) and zero adults engaged with it on their own. How can the station be so successful in one way while ineffective at holding visitors' attention or attracting adults? I attribute this to the simplistic nature of the activity–people arranged magnetic

letters and shapes to make a face; that was it. Bingmann, Johnson, and Grove (2009) stated that all visitors needed to learn something appropriate to their knowledge or skill level. Merely rearranging shapes is far below what most adults are capable of doing and there was not an obvious way to make the activity more complex. The Magnet Wall did not interest adults based on my observations in the lab. Even when adults used it intergenerationally (which five groups did), I only saw them speaking with a child as the child used it and the adults did not actually interact directly with the station themselves.

Socio-Cultural Context Learning and Social Aspects of the Lab

This section discusses the contextual model of learning (focusing on the socio-cultural context) and then the social experience that being in the lab could provide. The contextual model of learning asserts that all learning happens within three contexts simultaneously: the personal, the socio-cultural, and the physical (Falk, Dierking, & Adams, 2011). The personal context refers to how the learner's previous knowledge, interests and beliefs affect new information presented to him. There are two aspects to the socio-cultural context: the macro and micro. On a macro level, learners are influenced by beliefs held by their culture and society. On a micro level, people are affected by their social group and by individuals around them when they learn. The third context is the immediate physical realm where the learning occurs.

Focusing on the socio-cultural context, adults were teaching their children how to act by modeling behavior in the lab (this could be intentional by the adult or not). It is one thing for an adult to *tell* her child that museums are fun, but if the adult looks bored and is constantly glancing at her watch, she is not *demonstrating* that museums (and learning) are enjoyable. Anytime an adult interacted with a station alongside her child, she was demonstrating that she was interested in the activity. It is well known that adult

role models greatly influence children's learning and development, which, in turn, has lead many researchers to focus on how education occurs within a family (Kropf & Wolins, 1989). There were many examples in which a child engaged with an activity with his caregiver or saw his caregiver heavily engaged with an activity on her own. In both of these situations, the caregiver showed her child that she was choosing to interact with the activities in the museum and that the museum trip was intended for both people–not just the child. Additionally, the children in the intergenerational groups also taught the adults. The adults almost always let the children interact with a station before they joined in themselves. As the adults watched their children, the older generation learned from the younger about how to interact with the station. This was most apparent at the Fresh Paint Station, where the adults in six groups attentively watched their child create art on the screen before interacting with the station either intergenerationally or independently.

Often, it is also important for museum educators to get adults in intergenerational groups to stop being a teacher and trying to aid in their children's learning, and start being learners themselves. A study cited by Kropf and Wolins (1989) found that parents who spoke to their children as peers in conversation, as well as letting the children lead the discussion at times, helped their children's learning. This same study also stated the importance of designing activities that involved children *and* engaged their parents. Adults and children can learn alongside each other without one needing to guide the other at all times.

Using a view of learning influenced by Vygosky, Kropf and Wolins (1989) provided guidelines for family educational activities that were all social in nature. They include the directive that the activities should engage both generations together, as opposed to the parents merely watching or taking on a passive role as a reader or instructor. The guidelines also state that the activities should promote conversation and

provide open-ended questions and situations so that families with different degrees of knowledge can all participate. The MoMA lab adhered to all of these guidelines. Black (2005) stated that

> While most of the research has focused on families rather than other social groupings, the evidence suggests that the exhibits that most effectively engage an audience are those encouraging social interaction, discussion and involvement within and beyond the groups involved. (pp. 202-203)

The mother from Group 2 quite intentionally tried to teach her daughter the proper way to interact with others when she told her child that she had to wait to use the Magnet Wall Station until another little girl was done using it. Overhearing this, the little girl began telling the daughter from Group 2 how to use the station. Vygotsky stated that learning was a shared experience between a learner and someone more knowledgeable (Kropf & Wolins, 1989). The daughter from Group 2 was taught both by her mother and by her more knowledgeable peer in this situation.

Visitors in the lab were not just interacting with people within their groups. The nannies from Groups 8 and 9 interacted heavily with each other (and with the volunteer to some extent), and the two children from these groups interacted with each other, the volunteer, and both nannies. The girl from Group 3 frequently interacted at length with the facilitator, Kristen. The two women from Group 1 spoke with each other more than they spoke with the children. The father from Group 7 arrived as part of a group of nine people, with adults and children all mingling with each other throughout their visit. The people in Group 7 interwove themselves between subgroups within the larger group. All these people in the lab influenced each other's learning merely by being in the same space together while they explored and interacted with the activities. The socio-cultural context is part of the contextual theory of learning that describes how people learn, and is especially pertinent to museum learning. It focuses on the fact that people are influenced

both by the society in which they live and by the people that are with them when they learn.

Other researchers focus on the fact that many visitors go to the museum as a social outing with friends and family. Black (2005) stated that most visitors come to the museum as a group and want a social experience and conversation. Kiihne (2008) suggested arranging chairs in a circle in order to encourage conversation, which occurred at the Puppet-Making Station where the chairs were placed around the round table. As previously described, this station had the longest average visit length (nineteen minutes) and also was the only station where an adult interacted without her child for more than a few moments (the two mothers from Group 6 spent seventeen minutes together at the table, manipulating the materials and chatting with each other). The arrangement of the chairs encouraged the social aspect of the lab.

Sachatello-Sawyer et. al. (2002) also said that when adults decide upon a leisure activity, they tend to want to socialize (very apparent in Group 6). These researchers said that adult learners in museums can be segmented into four categories: knowledge seekers, socializers, skill builders, and museum lovers. Museum lovers, or those that visit frequently, were prevalent in my research, as Groups 4, 5, and 9 all mentioned visiting MoMA regularly or being members. Knowledge seekers are the largest portion of adult museum-goers according to Sachatello-Sawyer et. al., (2002), but in my observations in the lab I was able to more easily identify socializers. Black (2009) summarizes multiple researchers who write that many visitors are drawn to the informal learning situation found in museums with an emphasis on the social recreational contact. He states that surveys have found visitors prefer to come in groups (family or friends) and that visitors are largely motivated to come to the museum because it is conducive to socializing. This was validated in my research as well.

The social aspect of the museum visit was very clear with the two women from Group 6 who conversed with each other for two-thirds of their visit. For these two women, the trip to the lab was a time to spend with each other more than with their children (although the four did interact together at the Puppet Theater Station for the last third of their visit). However, each group member spoke with others in their group about what they were doing and other topics unrelated to the task at hand; it was a social outing.

So, how do museum educators shape activities and exhibits to help produce interaction, discussion and intra/intergroup involvement? Besides developing good activities, the educators must look at the design of the space itself.

Design

Kiihne (2008) described the use of "pods" in interactive exhibitions. Pods were areas within an exhibition that centered physically around an interactive activity (or activities) and focused conceptually on one idea. These delineated areas encouraged conversation because people could group around them and interact with both the activity and with other people at the same time. All the stations in the MoMA lab were also separated into pods. There was not any sort of wall separating the stations, but each activity had its own distinct area (see Illustration 1 in Chapter 4). Black (2005) stated that visitors want to "people-watch" and learn how to use the activity by looking at other groups first. This was possible due to the layout of the lab. This action is in contrast to Adams, et. al. (2003) who suggested that visitors were likely to hesitate when they felt that public interactions might lead to an embarrassing situation (which was a concern for visitors in the interactive exhibition at MASS MoCA's Kidspace, as described in Chapter 2). Shine and Acosta (2000) found similar results in their research and learned that

parents were less likely to play with their children when out in the open (also described in Chapter 2). I did not observe any issues like this in the MoMA Lab.

Based on my observations, another reason for the success of the Puppet-Making Station in particular was the fact that the activity was placed on a round table surrounded by stools. Borun (2008) identified characteristics developed by the PISEC for family-friendly exhibitions. One of these characteristics was that exhibitions should provide components that are multi-sided so that groups could cluster around them, letting visitors talk to each other and look at what others were doing. The Puppet-Making Station was multi-user, as recommended by PISEC, enabling many visitors to use it at once. The design of this station represents many components conducive to an intergenerational group-learning environment, as documented previously in research by PISEC.

Although I did not research any of the stations in *Material Lab*, I watched how families interacted with them every day for two months during my summer internship. The same round table that is currently the base for the Puppet-Making Station was also in *Material Lab*, and also provided art-making activities. All of the art-making activities at the table were extremely successful in engaging visitors, holding their attention for long periods of time, and promoting conversation both within and across visitor groups. The activity itself let people make art on their own level; it was located in the center of the room, and people were able to gather around the table as a group and talk to each other. It is not by chance that these stations had all those aspects in common and each one was effective at engaging visitors of all ages.

As described in Chapters 4 and 5, the lab is practically hidden within MoMA. Two of the seven families I interviewed said they learned about the lab because they were museum members (Groups 5 and 8), a third said that she came to the museum regularly (Group 9), a fourth (Group 3) reported that a volunteer or docent told her about the lab,

and a fifth (Group 4) relayed that a friend introduced her to the space. I did not interview the adults from Groups 1, 2, and 6. This means that of those interviewed, not a single group just happened to stumble across the lab or saw signage for it–they were all either members, frequent visitors, or were told about it by someone else.

There appeared to be at least some effect on the frequency of visitation based on the placement of a station within the lab. The first two stations closest to the welcome desk (Magnet Wall and Fresh Paint) were also the most visited stations of the study with six groups visiting each of them. The two stations that were the furthest back in the lab (Activity Boxes and iPad) were visited least. As indicated in Chapter 5 and discussed in this chapter, there are multiple possible reasons why some stations were visited more than others, but clearly there exists a trend linking usage and location, regardless of all other factors. This might be best demonstrated by the extremely popular Activity Box Station found at the front of *Material Lab* that then became a station with infrequent engagement when it was placed in the very back of *MoMA Art Lab: People*. As presented in Chapter 5, additional changes were made besides just moving the station from the front of the lab to the back, but based on my observations and interviews with the staff, the location had a strong effect on visitor usage.

Having discussed which aspects of the lab were most effective at engaging the adult members of intergenerational groups and reasons for why this may be so, what follows are other interesting and unexpected findings that developed as I analyzed my data.

QUESTIONS THAT AROSE

A surprising finding in my research was the discrepancy between what visitors said and what they did while in the lab. All the adults interviewed in this case study were

highly complimentary of the space and said the lab was good for both children and adults–but then most of them (eight of the nine groups) did not engage with the activities to the same extent as their children. For example, the mothers in Groups 3 and 4 said they were only there to support their children, but a few sentences later said that the space was good for children and adults. If the space is appropriate for both of them, why were the mothers only supporting their children? Did the parents not realize that they could have a visit that is just as meaningful and educational as the one their child was having? I believe their visits were meaningful, but maybe they did not take the time to think about it. If the problem is a lack of the adults' realizing what is occurring (or what potentially could occur), how can museum staff correct this? I assume visitors were not intentionally misleading me and honestly did not realize that they were interacting with the stations on their own. I am curious whether this inconsistency is common in other family learning or interactive exhibitions, and what may cause this incongruity in beliefs and actions.

My research also uncovered that there was a drastic difference between how most nannies interacted with their children compared to how parents and grandparents engaged with those under their care. The nannies acted more like facilitators, with a focused emphasis on the children in a way that promoted exploration and discussion, and it would be interesting to find out what might cause these differences. Nannies and facilitators are paid to spend time with the children, which may account for some of the differences in their interactions. They may be more likely to have studied child development, learning theory, and associated concepts since their livelihood depends on it, but of course many parents are motivated to learn about these same topics.

Use of the word "family" when describing intergenerational programming was an issue I considered before, during, and after my observations in the lab. Something inherent in my research is how many museums use that term. I intentionally use the word

"intergenerational" because I think it is a more accurate description of the audiences that use "family" events, programs, and spaces. The nanny/child duos are clearly a welcome addition to family days and spaces, although they are not technically a family. Adults without a child might be more willing to attend an event if it is labeled "intergenerational" rather than "family," because the emphasis is on engaging audiences of all ages and not the familial bond. Perhaps the word "intergenerational" is a bit academic, and the word "family" a bit too narrow. Can a term be coined that is able to combine the inclusiveness of the former with the friendliness of the latter and that better describes this audience of multiple generations? I believe the word "family," with regards to programming in museums, is intended to entice visitors who might not otherwise come, but I think it can be limiting, as well.

BENEFITS TO THE FIELD OF ART EDUCATION

My findings most clearly relate to museums or institutions that either are developing an intergenerational learning space or already have one and want to improve it. If museum educators want to entice families to visit and to stay for an extended period of time, they must genuinely try to engage visitors of all ages. To me, a family day is just that–a day for people of all generations interacting with the exhibition or programs and I witnessed MoMA doing just that. In particular, the art-making, socio-cultural learning context and social aspects, and design of *MoMA Art Lab: People* provided general concepts that can be applied to other interactive labs or stations. I also think that if we as museum educators want to show children that art museums are both educational and fun (a tricky combination), we need the help of parents. This was previously discussed and I think it is the most important and an easily transferable finding in my research.

However, I believe my findings have broader implications than just their application to interactive spaces. Many of the ideas presented in this thesis are not unique to activities within a lab or exhibition and can be applied to general programming as well. MoMA has family programs that also utilize whatever the current topic in the lab ("People," or "Materials," for example) and parents are encouraged to interact in these programs, as well as on family tours. The same concepts that serve as a foundation for the labs also are used in the programs. These ideas for learning are also applicable to science, history, and children's museums as well as other types of learning institutions that do not focus on art; the concept of intergenerational learning is in no way relegated to a single field. Most museums are moving toward interactive learning whether it be a separate space dedicated to interaction specifically, or a single interactive component within an exhibition.

FURTHER AREAS FOR RESEARCH

I was pleasantly surprised that every group in my study engaged intergenerationally with multiple stations and that in five of the nine groups, an adult got involved with activities on their own. Before collecting my data, I had speculated that at least one adult would not engage whatsoever with the stations. I found that speculation to be incorrect. I had set very high expectations regarding how often and how deeply most adults would pursue their own learning in the lab and was a little disappointed there were not more instances of adults interacting independently with a station for long periods of time (aside from the two mothers from Group 6 who engaged with the Puppet-Making Station for so long).

Although adults did interact with the activities and there were many instances of intergenerational engagement with all groups, it is still clearly a space that is used by

children more than adults. I think that more research on the MoMA lab is warranted as it relates to adults as part of an intergenerational group. I wish I had paid more attention to the adults and less on the children in my observations, although it was difficult to separate the two (especially when so much of what the adult did was depended on the child). A case study that is similar to mine, but solely focuses on the adults would be informative.

Adults on occasion came to the lab on their own, but the vast majority of lab visitors were part of intergenerational groups. Researching adults who came to the lab without children would be another excellent case study. The data should be gathered during a busier time of year or over a longer period of time compared to my study because this is a much smaller population. Adults visited without children at least three times during my four-day observation period of the lab in December, and I think interviewing this population would be beneficial to finding out ways to make the lab more friendly and engaging to adults (whether or not children are involved). Researching how to get adults engaged with interactive spaces is a different research topic than mine, which focused on how adults within an intergenerational group used the interactive space in MoMA. How did adults who arrived to the lab without children interact differently in the space compared to the adults that came with children? What motivated them, and will they return? These would be beneficial topics for future research.

What initially interested me in this topic was MoMA's relatively novel approach to family programming–adults and children both being the focus. I have since come across other institutions that have this dual emphasis on children and adults (such as the Second Saturdays Are for Families program at the Austin Museum of Art-Arthouse), although I cannot speak to the level of success at reaching both audiences. Undertaking a comparative case study between two institutions, both which focus on the family as a

whole, might yield additional information about what types of activities and programs successfully engage intergenerational audiences. There will most likely be a difference not only in philosophy between the two institutions, but also differences in audience due to geographic location, museum size, funding, and many other possible factors, but this type of study could yield very important information regarding intergenerational learning.

CONCLUDING REMARKS

Almost all museums have family programming in their institutions and are trying to attract audiences composed of this segment of the population. One way to best attract this group is to provide engaging, interactive components that entice all members of an intergenerational group, making sure not to ignore the learners over the age of eighteen. *MoMA Art Lab: People* is leading the way regarding intergenerational engagement in the museum.

This case study focused on observing adult visitors who arrived to the lab as part of an intergenerational group, as well as interviews with these same visitors and MoMA museum educators. Although my research was directed toward particular stations and activities, the components of the lab that were most effective at engaging visitors (art-making, socio-cultural contexts and social aspects, and design) are easily transferable to other exhibitions, labs, museums, learning institutions, and programs. As with much qualitative research, my study had a small focus (a single iteration of a lab within one museum) and small sample size (nine groups), but my findings have already begun to change my understanding of intergenerational learning and what it can look like in a museum. Before beginning my research, I had seen both children and adults eager to learn in the museum during visits to art museums, but rarely simultaneously. Watching people of different generations both get invested in the activities was very motivating for

me. I look forward to attempting to replicate some of the experiences provided by the lab in the future. Although I will probably not always have access to a space like *MoMA Art Lab: People*, I have an understanding of what made it effective at engaging adults, as well as foundational concepts that I can apply when developing my own interactives or programs intended for intergenerational audiences.

Appendix A- MoMA Permission Letter

Beth Foulds <bethannfoulds@gmail.com>

Hello! And info regarding my research

Margulies, Elizabeth <elizabeth_margulies@moma.org> Wed, Oct 17, 2012 at 10:43 AM
To: Beth Foulds <bethannfoulds@gmail.com>

Hi Beth,

This email confirms that you have permission to perform research for your Masters thesis at the Museum of Modern Art, in the month of December, 2012.

Best,

Elizabeth Margulies
Assistant Director, Family Programs
Department of Education
The Museum of Modern Art
(212)-708-9807
www.moma.org

Subscribe to our free Family Programs at MoMA E-newsletter, moma.org/enews

On Tue, Oct 16, 2012 at 3:34 PM, Beth Foulds <bethannfoulds@gmail.com> wrote:
[Quoted text hidden]

Appendix B – Consent and Assent Forms

(Legal Guardian and Child Consent Form)
Consent for Participation in Research
and
Legal Guardian Permission for Children Participation in Research

Title: Intergenerational Learning in the Museum of Modern Art's Interactive Lab

Introduction

The purpose of this form is to provide you (both as a prospective research study participant and as the parent of a prospective research study participant) information that may affect your decision as to whether or not you and your child will participate in this research study. The person performing the research will describe the study to you and your child and answer all questions. Read the information below and ask any questions you might have before deciding whether to partipate in the study yourself and deciding whether or not to give permission for your child to take part. If you decide to participate in this study and let your child be involved in this study, this form will be used to record your permission.

Purpose of the Study

If you agree, you and your child will be asked to participate in a research study about family learning the MoMA Lab. The purpose of this study is to see which activities in the Lab adults and children use the most and why those activities are popular. The researcher also wants to understand what makes the Lab enjoyable and a good learning environment for families. The intention is that other museums will be able to learn from the MoMA lab and use ideas from it in their institutions.

What are my child and I going to be asked to do?

If you and your child participate in this study, you both will be asked to

- Complete one interview as a family now
- Complete a second interview as a family when you are leaving the Lab

The first interview should take between 5-10 minutes and the second take between 10- 40 minutes. The study will include 10-15 families total. The study will also include interviews with 3-10 museum employees associated with the MoMA Lab.

Your participation **will** be **audio** recorded.

What are the risks involved in this study?

There are no foreseeable risks to participating in this study.

What are the possible benefits of this study?

Your child will receive no direct benefit from participating in this study; however, this study also may benefit other art museums by serving as a guide to assist in planning and developing similar spaces.

Do I or my child have to participate?

No, you and your child's participation in this study is voluntary. You or your child may decline to participate or to withdraw from participation at any time. Withdrawal or refusing to participate will not affect anyone's relationship with The University of Texas at Austin in anyway. You can agree to allow you and your child to be in the study now and change your mind later without any penalty.

What if my child does not want to participate?

In addition to your permission, your child must agree to participate in the study. If your child does not want to participate they will not be included in the study and there will be no penalty. If your child initially agrees to be in the study they can change their mind later without any penalty.

Will there be any compensation?

Neither you nor your child will receive any type of payment participating in this study.

What are the confidentiality or privacy protections for my child's participation in this research study?

Your child will only need to answer questions and provide information that he/she feels comfortable sharing with the researcher. This study is confidential and your child's name will not be associated with any of the interview notes for the study.

If you choose to participate in this study, you **will be audio** recorded. Any **audio** recordings will be stored securely and only the research team will have access to the recordings. Recordings will be kept for **6 months** and then erased. The data resulting from your participation may be used for future research or be made available to other researchers for research purposes not detailed within this consent form.

What are my confidentiality or privacy protections when participating in this research study?

You are only asked to answer questions and provide information that you feel comfortable sharing with the researcher. All notes will be stored in a locked file cabinet. If requested, a pseudonym will be used.

Whom to contact with questions about the study?

Prior, during, or after your participation you can contact the researcher Beth Foulds at 281-513-6337 or send an email to BethAnnFoulds@gmail.com.

This study has been processed by the Office of Research Support and the study number is 2012-10-0075.

Whom to contact with questions concerning your rights as a research participant?

For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Office of Research Support by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

Signature

You are making a decision about allowing you and your child to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow your child and yourself to participate in the study. If you later decide that you wish to withdraw your permission for your child or yourself to participate in the study you may discontinue his/her/your participation at any time. You will be given a copy of this document.

_____

Printed Name of Child

_____ _____

Signature of Parent(s) or Legal Guardian Date

_____ _____

Signature of Investigator Date

(Adult Consent Form)
Consent for Participation in Research

Title: Intergenerational Learning in the Museum of Modern Art's Interactive Lab

Introduction

The purpose of this form is to provide you information that may affect your decision as to whether or not to participate in this research study. The person performing the research will answer any of your questions. Read the information below and ask any questions you might have before deciding whether or not to take part. If you decide to be involved in this study, this form will be used to record your consent.

Purpose of the Study

You have been asked to participate in a research study about family learning the MoMA Lab. The purpose of this study is to see which activities in the Lab adults and children use the most and why those activities are popular. The researcher also wants to understand what makes the Lab enjoyable and a good learning environment for families. The intention is that other museums will be able to learn from the MoMA lab and use ideas from it in their institutions.

What will you to be asked to do?

If you agree to participate in this study, you will be asked to

- Complete one interview as a family now
- Complete a second interview when you are leaving the Lab

The first interview should take 5-10 minutes and the second interview should take between 10-40 minutes. This study will include 10-15 families total. The study will also include interviews with 3-10 museum employees associated with the MoMA Lab.

Your participation **will** be **audio** recorded.

What are the risks involved in this study?

There are no foreseeable risks to participating in this study.

What are the possible benefits of this study?

A possible benefit of participation is that you may become more self-aware of ways you can learn and play while in a museum, in addition to guiding your child(ren)'s learning and playing. This study also may benefit other art museums by serving as a guide to assist in planning and developing similar spaces.

Do you have to participate?

No, your participation is voluntary. You may decide not to participate at all or, if you start the study, you may withdraw at any time. Withdrawal or refusing to participate will not affect your relationship with The University of Texas at Austin in anyway.

If you would like to participate**,** please sign this form. You will receive a copy for yourself.

Will there be any compensation?

You will not receive any type of payment for participating in this study.

What are my confidentiality or privacy protections when participating in this research study?

You are only asked to answer questions and provide information that you feel comfortable sharing with the researcher. All notes will be stored in a locked file cabinet. If requested, a pseudonym will be used.

If you choose to participate in this study, you **will be audio** recorded. Any **audio** recordings will be stored securely and only the research team will have access to the recordings. Recordings will be kept for **6 months** and then erased. The data resulting from your participation may be used for future research or be made available to other researchers for research purposes not detailed within this consent form.

Whom to contact with questions about the study?

Prior, during or after your participation you can contact the researcher Beth Foulds at 281-513-6337 or send an email to BethAnnFoulds@gmail.com.

This study has been processed by the Office of Research Support and the study number is 2012-10-0075.

Whom to contact with questions concerning your rights as a research participant?

For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Office of Research Support by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

Participation

If you agree to participate, please sign this form and return it to the researcher.

Signature

You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

_____
Printed Name

_____ _____
Signature Date

As a representative of this study, I have explained the purpose, procedures, benefits, and the risks involved in this research study.

_____
Print Name of Person obtaining consent

_____ _____
Signature of Person obtaining consent

Child Assent Form
Assent for Participation in Research

Title: Intergenerational Learning in the Museum of Modern Art's Interactive Lab

Introduction

You have been asked to be in a study about what families like to do in the MoMA Lab. This study was explained to your **[mother/father/parents/guardian]** and **[she/he/they]** said that you could be in it if you want to. We are doing this study to see what makes learning fun for families in an art museum.

What am I going to be asked to do?

If you agree to be in this study, you will be asked to

- Answer a few questions with your family right now
- Answer a few more questions with your family when you are leaving the Lab.

The first set of questions will take between 5 and 10 minutes. The second set of questions that you are going to be asked when you are leaving MoMA Lab will take between 10 and 40 minutes. There will be 10-15 families in this study. The study will also include interviews with 3-10 museum employees associated with the MoMA Lab

You **will** be **audio** recorded.

What are the risks involved in this study?

There are no foreseeable risks to participating in this study.

Do I have to participate?

No, you do not have to be in the study. You should only be in the study if you want to. You can even decide you want to be in the study now, and change your mind later. No one will be upset. If you would like to be in the study, and you are older than 7 years old, please sign this form and give it back to me. If you are younger than 7, you can just tell me outloud that you will be part of me study. You will get to keep a copy and if you want to, you can look at it later.

Will I get anything to participate?

You will not get any type of payment participating in this study.

Who will know about my participation in this research study?

The records of this study will be kept private. Your answers may be used for a future study by me or other researchers.

Museum Employee Consent Form
Consent for Participation in Research

Title: Intergenerational Learning in the Museum of Modern Art's Interactive Lab

Introduction

The purpose of this form is to provide you information that may affect your decision as to whether or not to participate in this research study. The person performing the research will answer any of your questions. Read the information below and ask any questions you might have before deciding whether or not to take part. If you decide to be involved in this study, this form will be used to record your consent.

Purpose of the Study

You have been asked to participate in a research study about family learning in the MoMA Lab. The purpose of this study is to see which activities in the Lab adults and children use the most and why those activities are popular. The researcher also wants to understand what makes the Lab enjoyable and a good learning environment for families. The intention is that other museums will be able to learn from the MoMA lab and use ideas from it in their institutions.

What will you to be asked to do?

If you agree to participate in this study, you will be asked to share your opinion and thoughts regarding the MoMA Lab in a loosely structured interview, which should take 10-40 minutes. The study will include interviews with 3-10 museum employees associated with the MoMA Lab. This study will also include 10-15 family interviews.

Your participation **will** be **audio** recorded.

What are the risks involved in this study?

There are no foreseeable risks to participating in this study.

What are the possible benefits of this study?

A possible benefit of participation is that you may become more reflective on your role in the MoMA Lab, as well as the role of the Lab itself. This study also may benefit other art museums by serving as a guide to assist in planning and developing similar spaces.

Do you have to participate?

No, your participation is voluntary. You may decide not to participate at all or, if you start the study, you may withdraw at any time. Withdrawal or refusing to participate will not affect your relationship with The University of Texas at Austin in anyway.

If you would like to participate**,** please sign this form. You will receive a copy for yourself.

Will there be any compensation?

You will not receive any type of payment participating in this study.

What are my confidentiality or privacy protections when participating in this research study?

You are only asked to answer questions and provide information that you feel comfortable sharing with the researcher. All notes will be stored in a locked file cabinet. If requested, a pseudonym will be used.

If you choose to participate in this study, you **will be audio** recorded. Any **audio** recordings will be stored securely and only the research team will have access to the recordings. Recordings will be kept for **6 months** and then erased. The data resulting from your participation may be used for future research or be made available to other researchers for research purposes not detailed within this consent form.

Whom to contact with questions about the study?

Prior, during, or after your participation you can contact the researcher Beth Foulds at 281-513-6337 or send an email to BethAnnFoulds@gmail.com.

This study has been processed by the Office of Research Support and the study number is 2012-10-0075.

Whom to contact with questions concerning your rights as a research participant?

For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Office of Research Support by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

Participation

If you agree to participate, please sign this form and return it to the researcher.

Signature

You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

_____

Printed Name

_____ _____

Signature Date

As a representative of this study, I have explained the purpose, procedures, benefits, and the risks involved in this research study.

_____
Print Name of Person obtaining consent

_____ _____
Signature of Person obtaining consent

Signature

Writing your name on this page means that the page was read by or to you and you agree to be in the study. If you have any questions before, after or during the study, just ask. If you decide to quit the study, all you have to do is tell the person in charge.

_____ _____
Signature of Participant Date

Appendix C – Interview Questions

Family – First Interview

- Why did you visit MoMA today?
- Why did you visit the MoMA Lab today?
- How did you know what you were supposed to do when you got in here?
- What activities from the Lab have you used so far today? What did you think of them?
- What's the difference between playing and learning?
- Are you learning or playing in here?
- Are you learning/playing, or are you here to support your child's learning and playing? (adult)
- Do you think the Lab is a place that is good for both kids *and* adults? What makes you say that?

Family – Second Interview

- What were your favorite activities in here, and why?
- What were your least favorite activities in here, and why?
- Do you think the Lab is a place that is good for both kids *and* adults? What makes you say that?
- Which activities did your family do all together as a group?
- How did you decide when to play together and when to work on different things?
- Which activities here do you think were best for adults? (adult)
- Would you ever come in here even if you didn't have any children with you? What makes you say that? (adult)
- Which activities would you recommend to friends or another family?
- Do some activities seem more like you are playing than learning? Why do those seem more like playing?
- Do some activities feel more like learning than playing? What about them makes it feel more like learning?
- Are you learning and playing, or are you here to support your child's learning and playing? (adult)
- What could make this space better?
- What could make this space better for adults in particular? (adult)
- What suggestions or general thoughts do you have for the MoMA Lab?

Museum Employee Interview

- How did the MoMA Lab first come into being?
    - What inspired the creation of the Lab? Where did you look for guidance?
    - What departments were involved? How was that navigated?
    - What obstacles were faced in the Lab's developmental stages, and how were they overcome?
    - What are some current or recurring issues surround the Lab, and how do you handle those?
- What do you hope visitors get out of the Lab?
- How do you help them do that?
- What do the Lab and museum employees do to reach intergenerational audiences in particular?
- In what ways is the Lab most successful?
- In what ways could the Lab improve?
- What advice do you have for other institutions interested in making a similar space?
- Now where do you look for guidance or inspiration for intergenerational content and programming? (This could be other institutions, books, websites, individuals, etc.)
- Is there anything else you would like to say about the Lab?

Appendix D – IRB Exemption Letter

OFFICE OF RESEARCH SUPPORT

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 · Mail Code A3200
(512) 471-8871 · FAX (512) 471-8873

FWA # 00002030

Date: 11/19/12

PI: Melinda M Mayer

Dept: Art/Art History

Title: Intergenerational and Family Learning in the MoMA Lab

Re: IRB Exempt Determination for Protocol Number 2012-10-0075

Dear Melinda M Mayer:

Recognition of Exempt status based on 45 CFR 46.101(b)(2).

Qualifying Period: 11/19/2012 to 11/18/2015 . *Expires 12 a.m. [midnight] of this date.*
A continuing review report must be submitted in three years if the research is ongoing.

Responsibilities of the Principal Investigator:

Research that is determined to be Exempt from Institutional Review Board (IRB) review is not exempt from ensuring protection of human subjects. The following criteria to protect human subjects must be met. The Principal Investigator (PI):

1. Assures that all investigators and co-principal investigators are trained in the ethical principles, relevant federal regulations, and institutional policies governing human subject research.

2. Will provide subjects with pertinent information (e.g., risks and benefits, contact information for investigators and IRB Chair) and ensures that human subjects will voluntarily consent to participate in the research when appropriate (e.g., surveys, interviews).

3. Assures the subjects will be selected equitably, so that the risks and benefits of the research are justly distributed.

4. Assures that the IRB will be immediately informed of any information or unanticipated problems that may increase the risk to the subjects and cause the category of review to be reclassified to expedited or full board review.

5. Assures that the IRB will be immediately informed of any complaints from subjects regarding their risks and benefits.

6. Assures that confidentiality and privacy of the subjects and the research data will be maintained appropriately to ensure minimal risks to subjects.

7. Will report, by amendment, any changes in the research study that alter the level of risk to subjects.

These criteria are specified in the PI Assurance Statement that was signed before determination of exempt status was granted. The PI's signature acknowledges that they understand and accept these conditions. Refer to the Office of Research Support (ORS) website www.utexas.edu/irb for specific information on training, voluntary informed consent, privacy, and how to notify the IRB of unanticipated problems.

1. Closure: Upon completion of the research study, a Closure Report must be submitted to the ORS.

2. Unanticipated Problems: Any unanticipated problems or complaints must be reported to the IRB/ORS immediately. Further information concerning unanticipated problems can be found in the IRB Policies and Procedure Manual.

3. Continuing Review: A Continuing Review Report must be submitted if the study will continue beyond the three year qualifying period.

4. Amendments: Modifications that affect the exempt category or the criteria for exempt determination must be submitted as an amendment. Investigators are strongly encouraged to contact the IRB Program Coordinator(s) to describe any changes prior to submitting an amendment. The IRB Program Coordinator(s) can help investigators determine if a formal amendment is necessary or if the modification does not require a formal amendment process.

If you have any questions contact the ORS by phone at (512) 471-8871 or via e-mail at orsc@uts.cc.utexas.edu.

Sincerely,

James P. Wilson

James Wilson, Ph.D.
Institutional Review Board Chair

Gmail by Google

Beth Foulds <bethannfoulds@gmail.com>

IRB Study Number 2012-10-0075 Amendment Determination

Hammock, Meghan A <mhammock@austin.utexas.edu> Fri, Jun 14, 2013 at 3:01 PM
To: "Mayer, Melinda M" <mayermm@austin.utexas.edu>
Cc: "bethannfoulds@gmail.com" <bethannfoulds@gmail.com>

Re: Intergenerational Learning in the Museum of Modern Art's Interactive Lab

Dear Melinda M. Mayer,

Please upload the revised documents to IRBaccess and let me know when this done so I can get your study up to date.

Thank you for your notification of the changes to the protocol study listed above. The proposed changes to the protocol have been acknowledged as not increasing the risk toward study participants. I will place a copy of this communication in the folder for this protocol to keep the study up to date. The amendment status will show withdrawn.

Best wishes,

Meghan Hammock

IRB Program Coordinator

Office of Research Support

512-232-2625

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